

EXHIBIT B5

Arch I. "Chip" Carson, M.D., Ph.D.

Page 1

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NEW JERSEY

IN RE JOHNSON & JOHNSON)
TALCUM POWDER PRODUCTS)
MARKETING, SALES) MDL NO.
PRACTICES, AND PRODUCTS) 16-2738 (FLW) (LHG)
LIABILITY LITIGATION)
)
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)
THIS DOCUMENT RELATES TO)
ALL CASES)
)

Saturday, January 19, 2019

Videotaped Deposition of ARCH I. "CHIP" CARSON, M.D., Ph.D., held at the Marriott Houston Medical Center, 6580 Fannin Street, Houston, Texas, commencing at 9:02 a.m., on the above date, before Michael E. Miller, Fellow of the Academy of Professional Reporters, Certified Court Reporter, Registered Diplomate Reporter, Certified Realtime Reporter and Notary Public.

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2	Exhibit 15 Handwritten List of Materials Reviewed by Dr. Carson	124	1 PROCEEDINGS
3	Exhibit 16 1979 Chappell et al Publication	130	2 (January 19, 2019 at 9:02 a.m.)
4	Exhibit 17 2011 Reid et al Publication	159	3 THE VIDEOGRAPHER: We are now
5	Exhibit 18 2011 Camargo et al Publication	163	4 on the record. My name is Doug
6	Exhibit 19 2013 Terry et al Publication	192	5 Overstreet. I'm the videographer for
7	Exhibit 20 2016 Cramer et al Publication	195	6 Golkow Litigation Services. Today is
8	Exhibit 21 IARC Classification Groups Document	225	7 January 19th, 2019. The time is
9	Exhibit 22 2017 Berge et al Publication	243	8 9:02 a.m.
10	Exhibit 23 2007 Langseth et al Publication	247	9 This video deposition is being
11	Exhibit 24 2016 Schildkraut et al Publication	271	10 held in Houston, Texas in the matter
12	Exhibit 25 Excerpt from IARC Monograph 93	289	11 of Talcum Powder Litigation MDL
13			12 No. 2738.
14			13 The deponent is Dr. Chip
15			14 Carson.
16			15 Will counsel please identify
17			16 themselves for the record.
18			17 MS. O'DELL: Leigh O'Dell,
19			18 Beasley Allen, for the plaintiffs.
20			19 DR. THOMPSON: Margaret
21			20 Thompson, Beasley Allen, for the
22			21 plaintiffs.
23			22 MS. KLEVORN: Amanda Klevorn,
24			23 Burns Charest, for the plaintiffs.
			24 MR. ZELLERS: Michael Zellers
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3	Exhibit Hopkins-28	148	1 for the Johnson & Johnson defendants.
4	Exhibit Pier-47	148	2 MS. McBETH: Katherine McBeth,
5	Exhibit P-346	28	3 Drinker Biddle & Reath, for the
6		--oo--	4 Johnson & Johnson defendants as well.
7			5 MS. BOCKUS: Jane Bockus for
8			6 Imerys.
9			7 MR. DONATH: Jonathan Donath
10			8 from Coughlin Duffy for Imerys.
11			9 MS. APPEL: Renée Appel from
12			10 Seyfarth Shaw for Personal Care
13			11 Products.
14			12 MS. TINSLEY: Caroline Tinsley,
15			13 Tucker Ellis, for PTI Union, LLC and
16			14 PTI Royston, LLC.
17			15 THE VIDEOGRAPHER: The court
18			16 reporter today is Mr. Mike Miller, and
19			17 he will now swear in the witness.
20			18 ARCH I. "CHIP" CARSON, M.D., Ph.D.,
21			19 having been duly sworn,
22			20 testified as follows:
23			21 EXAMINATION
24			22 BY MR. ZELLERS:
			23 Q. Can you state your name,
			24 please.

3 (Pages 6 to 9)

Arch I. "Chip" Carson, M.D., Ph.D.

<p>1 A. Arch Carson. 2 Q. You are a physician; is that 3 right? 4 A. I am. 5 Q. A medical toxicologist? 6 A. Yes. 7 Q. We are here today to take your 8 deposition in the talc MDL litigation 9 proceedings; is that right? 10 A. As far as I know, yes. 11 Q. You are an expert witness for 12 the plaintiffs in that litigation; is that 13 right? 14 A. Yes. 15 Q. Did you receive a notice of 16 deposition, which we'll mark as Exhibit 1, to 17 appear here today? 18 (Carson Deposition Exhibit 1 19 marked.) 20 A. Yes, I received a copy of this 21 document. 22 MS. O'DELL: And, Michael, just 23 for the record, we just reassert all 24 our previously served objections to</p>	<p>Page 10</p> <p>1 BY MR. ZELLERS: 2 Q. As best we can, let me finish 3 my question before you start to give your 4 answer. I'll do the same and allow you to 5 finish your answer before I ask you another 6 question so our court reporter can take down 7 what each of us say. 8 Can you do that? 9 A. Yes. 10 Q. In response to the notice of 11 deposition, which we've marked as Exhibit 1, 12 have you brought with you certain documents 13 here today? 14 A. I have a collection of 15 documents that in part respond to these 16 requests, yes. 17 Q. Do you have any documents in 18 your possession that are responsive to the 19 notice of deposition, Exhibit 1, that you 20 have not brought here today? 21 A. I would have to go through 22 these things one by one, but -- 23 Q. You didn't do that before we 24 came here today?</p>
<p>1 the notice. 2 MR. ZELLERS: Thank you. 3 BY MR. ZELLERS: 4 Q. You have given deposition 5 testimony in the past; is that right? 6 A. I have. 7 Q. On how many occasions? 8 A. Probably 30, 35. 9 Q. You are familiar with the 10 procedures we're going to follow today? 11 A. More or less, I think. 12 Q. If at any time I ask you a 13 question and you don't understand it, tell me 14 you don't understand it and I'll repeat it or 15 rephrase it to try to make it clear to you. 16 Can you do that? 17 A. Yes. 18 Q. If you answer a question that I 19 ask or that any of the counsel ask, we're 20 going to assume that you understood it; is 21 that fair? 22 MS. O'DELL: Object to form. 23 A. That's fair. 24 ///</p>	<p>Page 11</p> <p>1 A. I did, but the plaintiffs' 2 attorneys -- 3 MS. O'DELL: Let me just stop 4 you, Dr. Carson, just because 5 discussing what we've discussed is not 6 within the purview of this deposition. 7 That's privileged. Let me just say -- 8 THE WITNESS: All right. 9 MS. O'DELL: -- Dr. Carson, in 10 response to the notice, has brought 11 with him copies of the cited materials 12 in his report, and that's in the 13 binder that is to his left. 14 He's brought with him copies of 15 certain documents that were listed on 16 his materials considered list. He 17 doesn't have a physical copy of 18 everything on his materials considered 19 list. 20 I brought today a thumb drive 21 that has a copy of all the items on 22 his materials considered list. If you 23 would like access to that, it's 24 available to you.</p>

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<p>1 And then in addition, he has 2 brought some additional materials that 3 he has reviewed since the service of 4 his report. 5 The only other item, as I 6 recall, on the notice of deposition 7 request for documents that has not 8 been brought to the deposition is 9 copies of invoices and Dr. Carson has 10 not sent us an invoice. That's why we 11 don't have a copy. 12 So to try to short-circuit 13 this, just to make sure since we made 14 decisions about what's produced and 15 what's not, I'll just say all that for 16 the record. And if you'd like that, 17 you're welcome to it. 18 BY MR. ZELLERS: 19 Q. Dr. Carson, you heard 20 Ms. O'Dell describe what you brought here 21 today. Is all of that accurate? 22 A. It is. 23 Q. Are you aware of there being 24 any documents or materials that are</p>	<p>Page 14</p> <p>1 Q. I'll ask you about the 2 attachments in a moment. 3 Does this report, 4 Deposition Exhibit 2, contain all of the 5 opinions that you intend to offer at any 6 trial or hearing of this matter? 7 A. In general, it contains all of 8 my opinions. I expect to expand on those 9 opinions possibly in this deposition or in 10 the future. 11 Q. Today's my opportunity to ask 12 you what your opinions are in this matter. 13 As of today, are the opinions 14 that you expressed to us set forth at any 15 trial or hearing in this matter, are they 16 contained in your report, Exhibit 2? 17 A. I have seen information that 18 has become available recently that I did not 19 have at that time this report was finalized, 20 and I have modified my opinions very slightly 21 as a result of that information. 22 Q. How have you modified your 23 opinions? 24 A. My opinions have essentially</p>
<p>1 responsive to the deposition notice that you 2 have not brought with you here today? 3 A. No. 4 Q. I'm trying to understand what 5 counsel for plaintiffs, Ms. O'Dell, has said, 6 so let me ask you some questions. 7 You have brought with you today 8 in a binder some of the cited materials in 9 your report; is that right? 10 A. Yes. This is intended to be a 11 complete set of the cited references, with 12 one exception. 13 Q. When you say cited 14 references -- 15 A. From my report. 16 Q. Your expert report, we will 17 mark as Exhibit 2. 18 (Carson Deposition Exhibit 2 19 marked.) 20 BY MR. ZELLERS: 21 Q. Is Deposition Exhibit 2 your 22 report in this matter? 23 A. It is. It also has 24 attachments.</p>	<p>Page 15</p> <p>1 been strengthened as they relate to the 2 causation question between perineal talcum 3 powder use and the occurrence of ovarian 4 cancers. 5 Q. Other than you believing that 6 your opinions are strengthened with respect 7 to the association between perineal talcum 8 powder use and ovarian cancer, have your 9 opinions changed at all since you prepared 10 your report, Exhibit 2? 11 A. No. 12 Q. Are there any new or additional 13 opinions as of today that you expect to 14 testify to at trial or any hearing of this 15 matter other than your report, Exhibit 2, and 16 as you have qualified that report by stating 17 that your opinions on association are 18 stronger today? 19 A. No. 20 MS. O'DELL: Object to the 21 form. 22 BY MR. ZELLERS: 23 Q. Okay. Your report has a list 24 of references that begin on page 11.</p>

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<p>1 Do you see that?</p> <p>2 A. Yes.</p> <p>3 Q. What are the references? What</p> <p>4 do they relate to? And by that, I mean --</p> <p>5 I'm just trying to understand what this list</p> <p>6 is.</p> <p>7 A. This is a list of references</p> <p>8 from which I gleaned information that were</p> <p>9 important to my forming opinions regarding</p> <p>10 the question that was given to me, and they</p> <p>11 contribute to pieces of the report in various</p> <p>12 ways.</p> <p>13 They don't represent a complete</p> <p>14 review that I made in preparing my report,</p> <p>15 but all are important in some way in terms of</p> <p>16 coming to my conclusions.</p> <p>17 Q. Are the references that you</p> <p>18 list in your report from page 11 up and</p> <p>19 through page 16, are those the materials that</p> <p>20 you are relying on in terms of your opinions</p> <p>21 that you're expressing in your report?</p> <p>22 MS. O'DELL: Objection to form.</p> <p>23 A. Yes.</p> <p>24 ///</p>	<p>Page 18</p> <p>1 I produced a report that I</p> <p>2 thought was responsive to the question that</p> <p>3 was given to me by the plaintiffs' attorneys,</p> <p>4 and within that report I felt it necessary to</p> <p>5 cite specific key references that contributed</p> <p>6 to items in that report.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. And those are --</p> <p>9 MS. O'DELL: Excuse me, sir.</p> <p>10 Are you finished, Dr. Carson?</p> <p>11 THE WITNESS: Yes.</p> <p>12 MS. O'DELL: Okay. Sorry.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Those are the items that you've</p> <p>15 listed under References; is that right?</p> <p>16 A. Yes.</p> <p>17 Q. Literature are other materials</p> <p>18 that you have reviewed but didn't rise to the</p> <p>19 level of you citing them as a reference for</p> <p>20 your report, correct?</p> <p>21 A. That is correct, but they do</p> <p>22 contribute information that I utilize in</p> <p>23 terms of the whole to formulate my opinions.</p> <p>24 Q. Let me mark several of the</p>
<p>1 BY MR. ZELLERS:</p> <p>2 Q. What, then, is the difference</p> <p>3 between the references to your report and</p> <p>4 Exhibit B, which has a caption, Literature?</p> <p>5 A. The Exhibit B represents a</p> <p>6 larger set of documents, including scientific</p> <p>7 literature, technical reports, and so forth</p> <p>8 that I reviewed in preparation of my report</p> <p>9 and the formation of my opinions; but they</p> <p>10 did not contain information that I felt</p> <p>11 necessary to cite in my report.</p> <p>12 Q. The literature that you cite to</p> <p>13 as Appendix B of your report are materials</p> <p>14 that you reviewed but are not the materials</p> <p>15 that you're specifically relying on. The</p> <p>16 materials that you're specifically relying on</p> <p>17 are set forth in your references list; is</p> <p>18 that right?</p> <p>19 MS. O'DELL: Excuse me. Object</p> <p>20 to the form, misstates his testimony.</p> <p>21 A. My opinions are based on my</p> <p>22 total review of the literature as well as my</p> <p>23 training, my professional experience and many</p> <p>24 other factors.</p>	<p>Page 19</p> <p>1 attachments to your report as separate</p> <p>2 exhibits.</p> <p>3 (Carson Deposition Exhibit 3</p> <p>4 marked.)</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. Exhibit 3 is your curriculum</p> <p>7 vitae that was attached to your report; is</p> <p>8 that right?</p> <p>9 A. Yes.</p> <p>10 (Carson Deposition Exhibit 4</p> <p>11 marked.)</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. Exhibit 4 is a copy of your</p> <p>14 literature list that we just discussed that</p> <p>15 is in your report; is that right?</p> <p>16 A. Yes.</p> <p>17 MS. O'DELL: Thank you.</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. The one difference with</p> <p>20 Exhibit 4, your literature list that's</p> <p>21 attached to your report as Appendix B is not</p> <p>22 numbered. I've gone ahead and numbered the</p> <p>23 pages on Exhibit 4, your literature list, in</p> <p>24 case we want to refer to a specific page.</p>

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<p>1 Today, when I refer to 2 products, talc products, baby powder or 3 Shower to Shower, I'm referring to the baby 4 powder product manufactured by Johnson & 5 Johnson Consumer Products Inc. and the Shower 6 to Shower product formerly manufactured by 7 Johnson & Johnson Consumer Products Inc. 8 Do you understand that? 9 A. Yes. 10 Q. Is your report, Exhibit 2, 11 accurate? 12 A. I believe so. 13 Q. Do you believe it's complete? 14 A. In terms of its focus, yes. 15 Q. What do you mean in terms of 16 its focus? 17 A. It covers specific aspects of a 18 larger question, and regarding those specific 19 aspects, I believe it is complete. 20 Q. It covers the aspects of the 21 question that you intend to offer opinions 22 on, correct? 23 A. That is correct. 24 Q. What is the question that was</p>	<p>Page 22</p> <p>1 binder of materials; is that right? 2 A. Yes. 3 Q. The binder of materials, did 4 you prepare that, or was it prepared for you? 5 A. Well, I uploaded documents to a 6 share file, and the plaintiffs' attorneys 7 were kind enough to print those for me and 8 assemble them in the binder. 9 Q. In addition, you have brought 10 with you a stack of eight or so additional 11 references that you have on the table in 12 front of you; is that right? 13 A. Yes. 14 Q. Are those materials that were 15 cited either as references in your report or 16 in the literature section of your report? 17 A. I think they're all included in 18 one or the other of those lists. 19 Q. Your testimony under oath is 20 that all of the additional materials you 21 brought here today are referred to either in 22 your reference list, which is -- begins at 23 page 11 of your report, or your literature 24 list, which we've marked as Exhibit 4 and is</p>
<p>1 given to you by counsel for plaintiffs in 2 this litigation? 3 A. The question is do the -- does 4 the habitual use of talcum powder products 5 cause ovarian cancer. 6 Q. Were you given any other 7 questions to answer or opine on in this 8 litigation? 9 A. Not specifically. 10 Q. What do you understand habitual 11 use of talcum powder to refer to? 12 A. It means routine use, periodic 13 use. 14 Q. Over any period of time? 15 A. Over an extended period of 16 time. 17 Q. What is an extended period of 18 time? 19 A. Months or years. 20 Q. Any other definition that you 21 have of habitual use? 22 A. No. 23 Q. Today, in response to the 24 notice of deposition, you did bring the</p>	<p>Page 23</p> <p>1 Exhibit B to your report; is that right? 2 MS. O'DELL: Objection to the 3 form. 4 Go ahead. 5 A. There are a couple of new 6 articles here that were not available at the 7 time that I submitted my report, and I 8 believe the literature list was also created. 9 BY MR. ZELLERS: 10 Q. Were those new materials 11 provided to you by plaintiffs' counsel or are 12 those materials that you did some type of 13 literature search and found? 14 A. One of them was provided to me 15 by plaintiffs' counsel, but I was aware that 16 it was coming. And -- actually, two of them 17 were provided by plaintiffs' counsel. 18 Q. All right. The two additional 19 documents that were provided to you by 20 plaintiffs' counsel, can you show those to 21 me? 22 A. Okay. One is the Longo report. 23 Q. We will mark as 24 Deposition Exhibit 5 the Longo report dated</p>

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<p>1 January 15th of 2009 [sic]. 2 (Carson Deposition Exhibit 5 3 marked.) 4 A. The other is the recent 5 Fletcher, et al article. 6 (Carson Deposition Exhibit 6 7 marked.) 8 BY MR. ZELLERS: 9 Q. The Fletcher article dated 10 January 3rd of 2019 we'll mark as Exhibit 6. 11 This is an article from Reproductive 12 Sciences; is that right? 13 A. Yes. And I actually have a 14 third. 15 Q. All right. You have a third 16 article that was provided to you by 17 plaintiffs' counsel? 18 A. Yes. 19 (Carson Deposition Exhibit 7 20 marked.) 21 BY MR. ZELLERS: 22 Q. Let's mark that as 23 Deposition Exhibit 7. Can you tell us what 24 article that is?</p>	<p>1 Ph.D.; is that right? 2 A. Yes. 3 Q. What additional articles have 4 you brought here with you today separate and 5 apart from your binder of materials? 6 A. There's a copy of the IARC 7 monographs preamble. 8 Q. For what purpose did you bring 9 that article? 10 A. This discusses the general 11 process that IARC uses in approaching a 12 putative carcinogenic material. 13 Q. That has previously been marked 14 as Plaintiff Exhibit P-346 in another 15 proceeding; is that right? 16 A. I don't know. 17 Q. Well, the document we're 18 looking at has that exhibit sticker on it; is 19 that right? 20 A. It does. 21 Q. What else have you brought here 22 with you today? 23 A. This is an article from 24 The Lancet from 1952 titled Value of Modified</p>
<p>1 A. This is a meta-analysis. 2 It's -- the title is Systematic Review and 3 Meta-Analysis of the Association Between 4 Perineal Use of Talc and Risk of Ovarian 5 Cancer. The lead author is Mohamed Taher. 6 Q. The Taher paper we have marked 7 as Exhibit 7; is that right? 8 A. Yes. 9 Q. This is something that you were 10 provided by plaintiffs' counsel; is that 11 right? 12 A. Yes. 13 Q. Exhibit 6, Reproductive 14 Sciences, are you familiar with that journal? 15 A. I'm aware that it exists. 16 Q. Do you review that journal on a 17 regular basis as a part of your clinical and 18 research activities? 19 A. No, I don't. 20 Q. Is Reproductive Sciences a 21 peer-reviewed journal? 22 A. I believe it is. 23 Q. The Exhibit 6 has as a 24 corresponding author, Dr. Saed, S-A-E-D, a</p>	<p>1 Starch as a Substitute for Talc, and the 2 first author is J.D.P. Graham. 3 Q. Why did you bring that article? 4 A. This is an older article that 5 discusses the suitability of substituting 6 cornstarch materials for talc due to 7 perceived issues with talc. 8 Q. Is this an article that you had 9 cited previously, either in your references 10 or your list of literature? 11 A. I did not cite it in my report. 12 I don't know -- I don't recall if it's in the 13 literature list or not. 14 (Carson Deposition Exhibit 8 15 marked.) 16 BY MR. ZELLERS: 17 Q. Why did you decide to bring 18 that with you here today? 19 A. It is in the literature list. 20 I ran across it last night, and 21 I thought I might need to refer to it during 22 the deposition. 23 Q. What other documents or 24 materials have you brought other than your</p>

<p>1 binder of materials?</p> <p>2 A. I have here a copy of the</p> <p>3 recent Canadian position on the safety of</p> <p>4 talcum powder and its relationship to ovarian</p> <p>5 cancer.</p> <p>6 Q. When did you review that</p> <p>7 document?</p> <p>8 A. A couple weeks ago, I think.</p> <p>9 Q. Is that a document that you</p> <p>10 were provided by plaintiffs' counsel?</p> <p>11 A. It was.</p> <p>12 Q. Can I see the document, please?</p> <p>13 We'll mark the draft screening assessment</p> <p>14 from Health Canada dated December 18th of</p> <p>15 2018 as Exhibit 9.</p> <p>16 (Carson Deposition Exhibit 9</p> <p>17 marked.)</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. Any other documents?</p> <p>20 A. I have a copy of the letter</p> <p>21 from the FDA from April 1st, 2014 responding</p> <p>22 to positions -- petitions for labeling.</p> <p>23 Q. This is a letter that has a</p> <p>24 stamp on it on the first page, April 1st,</p>	<p>Page 30</p> <p>1 talcum powder and ovarian cancer, is</p> <p>2 something that you undertook when you were</p> <p>3 retained by plaintiffs' counsel and asked to</p> <p>4 address the question they gave to you?</p> <p>5 A. Yes, it is.</p> <p>6 Q. We will mark the article by</p> <p>7 Blount as Exhibit 11.</p> <p>8 (Carson Deposition Exhibit 11</p> <p>9 marked.)</p> <p>10 BY MR. ZELLERS:</p> <p>11 Q. And you have one more; is that</p> <p>12 right?</p> <p>13 A. Yes, one more, which is -- this</p> <p>14 is an article from the American Journal of</p> <p>15 Obstetrics and Gynecology from 1974 titled</p> <p>16 The Ovarian Mesothelioma. It's authored by</p> <p>17 Parmley and Woodruff.</p> <p>18 Q. We'll mark that as Exhibit 12.</p> <p>19 (Carson Deposition Exhibit 12</p> <p>20 marked.)</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. Exhibit 12, is this an article</p> <p>23 that was cited previously by you in either</p> <p>24 your references or your literature list?</p>
<p>1 2014, from -- or strike that -- to</p> <p>2 Dr. Epstein from the FDA; is that right?</p> <p>3 A. Yes.</p> <p>4 Q. Let's mark that as Exhibit 10.</p> <p>5 (Carson Deposition Exhibit 10</p> <p>6 marked.)</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. What else?</p> <p>9 A. I have an article authored by</p> <p>10 A.M. Blount which is titled Amphibole Content</p> <p>11 of Cosmetic and Pharmaceutical Talc that was</p> <p>12 published in Environmental Health</p> <p>13 Perspectives in 1991.</p> <p>14 Q. Is that a journal that you</p> <p>15 review on a regular basis as part of either</p> <p>16 your clinical practice or your research</p> <p>17 activities?</p> <p>18 A. That one I do look at pretty</p> <p>19 much.</p> <p>20 Q. Is this an article you were</p> <p>21 aware of back in 1991?</p> <p>22 A. No. At least I don't recall.</p> <p>23 Q. Is it fair that your review of</p> <p>24 this literature, the literature relating to</p>	<p>Page 31</p> <p>1 A. Yes.</p> <p>2 Q. For what -- strike that.</p> <p>3 Is this a document that you</p> <p>4 chose to bring today or were you provided it</p> <p>5 by plaintiffs' counsel?</p> <p>6 A. This is another one I ran</p> <p>7 across last night and decided to bring along</p> <p>8 to the depo.</p> <p>9 Q. Same questions with respect to</p> <p>10 the Blount article, Exhibit 11: Is this an</p> <p>11 article you cite in your references or</p> <p>12 literature?</p> <p>13 A. In the literature, yes.</p> <p>14 Q. For what purpose have you</p> <p>15 brought this with you today?</p> <p>16 A. I thought I might want to refer</p> <p>17 to it in response to questions here.</p> <p>18 Q. Exhibit 10, the letter from the</p> <p>19 FDA to Dr. Epstein, April of 2014, for what</p> <p>20 purpose have you brought that here with you</p> <p>21 today?</p> <p>22 A. I thought I might want to refer</p> <p>23 to it in response to questioning.</p> <p>24 Q. The documents that you have</p>

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1 brought here with you today are documents
2 that you wanted to have available to try to
3 respond to the questions that I may ask you?

4 A. Yes.

5 Q. These documents you all
6 believe -- strike that.

7 The documents that you've
8 identified and you've brought with you --
9 have brought with you today, you believe
10 those are supportive of the opinions that you
11 are rendering in this matter; is that right?

12 A. Yes.

13 Q. The documents on your
14 literature list, what we have marked as
15 Exhibit 4, are those documents that were
16 provided to you by plaintiffs' counsel?

17 A. Some were.

18 Q. The documents on this list that
19 were not provided by plaintiffs' counsel, did
20 you find those through a literature search?

21 A. Yes.

22 Q. Are you able to distinguish for
23 us which documents on your literature list,
24 Exhibit 4, came from plaintiffs' counsel and

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1 wouldn't be able to tell you for sure. I'm
2 sure I ran across these in my own literature
3 search.

4 Q. Deposition Exhibit 13, we will
5 mark the thumb drive that plaintiffs' counsel
6 has brought here today.

7 (Carson Deposition Exhibit 13
8 marked.)

9 BY MR. ZELLERS:

10 Q. Do you, Dr. Carson, have an
11 understanding of what's on the thumb drive
12 we've marked as Exhibit 13?

13 A. My understanding is this is
14 copies of the documents on the literature
15 list.

16 Q. When were you first retained by
17 anyone regarding the talc/ovarian cancer
18 litigation?

19 A. In October of 2018.

20 Q. Who contacted you?

21 A. I was contacted by an attorney
22 named Russ Abney.

23 Q. Who is Mr. Abney, if you know?

24 A. Mr. Abney is a lawyer who used

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1 which items on the literature list you came
2 up with?

3 A. To some extent.

4 Q. So if we went through item by
5 item, you believe you could distinguish
6 between what was provided to you by
7 plaintiffs and what you found on your own?

8 A. For some, but not all of them.

9 Q. Have you reviewed all of the
10 materials that are listed on your literature
11 list?

12 A. I have reviewed all of them,
13 yes.

14 Q. Have you reviewed all of the
15 materials that are on your reference list?

16 A. Yes.

17 Q. The materials on your reference
18 list, is it the same that some were provided
19 to you by plaintiffs' counsel and some you
20 found on your own?

21 A. I think there may be one or two
22 references that I didn't have before I saw
23 them in the share file that may have been
24 provided by plaintiffs' counsel, but I

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1 to work in the Houston area and with whom I
2 had some dealings years ago; and since that
3 time he has become involved in this talc
4 litigation in some way, was aware of me as a
5 potential expert witness, and contacted me
6 regarding my interest and availability.

7 Q. What matters have you worked on
8 with Mr. Abney in the past?

9 A. I think it would have been back
10 in the 1990s, and I frankly don't recall what
11 cases we worked on, but there were one or
12 maybe two cases.

13 Q. When in October of 2018 were
14 you contacted by Mr. Abney?

15 MS. O'DELL: Object to the
16 form.

17 A. I believe it was either the
18 14th or 15th of October.

19 BY MR. ZELLERS:

20 Q. How do you remember with that
21 precision?

22 A. I have an e-mail that relates
23 to a phone call which was our initial
24 contact.

<p>1 Q. Mr. Abney at some point asked 2 you to address the question that you told us 3 before: Does the habitual use of talcum 4 powder cause ovarian cancer? 5 Is that right? 6 MS. O'DELL: Object to the 7 form. 8 A. Well, he talked to me generally 9 about the case that was proceeding, and I 10 discussed with him what my understanding of 11 those things was and what the kind of 12 opinions I would be able to render would be. 13 And he suggested that he set up a meeting 14 between me and members of plaintiffs' 15 counsel. 16 BY MR. ZELLERS: 17 Q. When Mr. Abney called you 18 middle of October of 2018, talcum powder and 19 any relationship or association that it may 20 have to ovarian cancer had not been a focus 21 of your research or study; is that right? 22 A. That's right. 23 Q. It had not been a part of your 24 clinical practice, right?</p>	<p>1 doing a review? What does that mean? 2 A. Well, I felt that I was hired 3 as a witness at that point and that's when I 4 would begin my billable hours on this case. 5 Q. When was that? Sometime in 6 later October of -- late October of 2018? 7 A. It was within a few days after 8 our first meeting, still in October. 9 Q. What did you do to answer the 10 question? What was your methodology? 11 A. Well, initially I decided to do 12 a general literature search on the question 13 to see what research had been performed, what 14 reports had been written, what the quality of 15 that research was. 16 Q. When did you start that? 17 A. Immediately. I was curious. 18 I began to assemble the 19 available literature and review it on a 20 piecemeal basis through the subsequent time 21 period; the next couple of weeks I reviewed a 22 lot of it. 23 Q. What did you search for when 24 you did this general literature search?</p>
<p>1 A. That's correct. 2 Q. When did you meet with the 3 larger group of plaintiffs' counsel? 4 A. I believe we had a telephone 5 meeting on the 16th of October. I'm not 6 sure. I have to -- 7 Q. That's -- right now I just want 8 estimates. 9 A. Okay. 10 Q. And so I don't -- as long as 11 you're reasonably comfortable that it was in 12 that time frame. 13 A. It was mid October. 14 Q. That's fine. 15 When were you asked the 16 question that the plaintiffs' lawyers wanted 17 you to try to answer in this litigation? 18 A. Well, after the meeting we 19 parted ways and then made contact again a few 20 days later, and I was told that they were 21 interested in me going ahead and doing a 22 review and starting to establish opinions. 23 Q. What do you mean by they 24 authorized you or were comfortable with you</p>	<p>1 A. I searched under various search 2 terms, including "talc," including "ovarian 3 cancer," the relationship between the two. 4 As I became more familiar with the 5 literature, I expanded that search into other 6 topics. 7 As I became -- I was already 8 aware of issues related to the inclusion of 9 asbestos in talc deposits, and so I expanded 10 my search into that part of the literature 11 that relates to asbestos in talc or asbestos 12 in ovarian cancer. 13 As I felt my opinions would 14 need to extend into cancer and carcinogenesis 15 in general, I did some search into ovarian 16 cancer specifically and general 17 carcinogenesis to see what the current state 18 of the art was regarding that in the 19 literature. 20 I looked at some issues of 21 mining practices. 22 I looked at the Johnson & 23 Johnson website. There's a webpage regarding 24 talc and ovarian cancer that I looked at.</p>

1 I looked through old notes and
2 lecture files that I had for information that
3 I've used or accessed previously in my
4 professional capacity for information that
5 was pertinent.

6 Just a very dendritic kind of
7 extensive search.

8 Q. You reviewed these materials
9 that you have told us about and then did you
10 prepare your report?

11 A. At that point I -- well, the
12 literature review took several stages.
13 Typically when you perform a review like
14 this, you end up with a -- I do a very
15 general sort of approach to a review, so I
16 get much more than will be pertinent to my
17 review eventually.

18 I find that a valuable approach
19 because it allows me to find things I
20 wouldn't otherwise find or look for or know
21 to look for.

22 And then I'm able to cull
23 through that information and discard pieces
24 of the search materials that are not relevant

1 review of draft versions of my report and
2 comments, in particular --
3 Q. Don't tell me about the
4 comments.

5 A. Okay.

6 Q. I don't want to know what the
7 lawyers may have told you.

8 Did the comments come from the
9 lawyers for plaintiffs or did they come from
10 other people?

11 A. They came from the lawyers.
12 They also came from a few of my colleagues.

13 Q. Did you share your report with
14 some of your colleagues?

15 A. I let a few people read it and
16 I talked to them about it.

17 Q. Are the opinions your opinions?

18 A. Yes, they are.

19 Q. Have you told me, you know,
20 generally what you have done to formulate
21 your opinions in this matter?

22 A. Yes, I think so.

23 Q. You did all of this over a
24 30-day period; is that right?

1 or interesting to me and then refine my
2 search and redo it, extending it into
3 different areas that have now become
4 pertinent in my opinion, until I satisfy
5 myself that I have pretty much covered the
6 waterfront so to speak in terms of a
7 literature review.

8 Q. You did your literature review.
9 You reviewed the Johnson & Johnson website
10 and the other materials that you have told us
11 about.

12 Did you then formulate your
13 opinions and set them down in your report
14 which we marked as Exhibit 2?

15 A. I did. I began writing as I
16 reviewed the literature and continued to take
17 notes which, through a continuous editing
18 process, eventually became my report.

19 Q. Did you prepare your report?

20 A. I did.

21 Q. Did anyone assist you in the
22 preparation of your report?

23 A. No one assisted me in the
24 preparation of my report. I did receive

1 A. Yes.

2 Q. All right. You have no
3 invoices, correct?

4 A. That's correct.

5 Q. Is it typical that you'll work
6 on a matter for some number of months and not
7 generate any invoices?

8 A. Yes.

9 Q. You are billing your time at
10 what rate?

11 A. \$450 per hour.

12 Q. Can you estimate for us the
13 number of hours that you have spent doing
14 your literature review, formulating your
15 opinions, and writing your report?

16 A. There's still some tallying I
17 need to do from my calendar, but it's between
18 150 and 180 hours.

19 Q. Does that include your meetings
20 and communications with plaintiffs' counsel?

21 A. Yes, that's up until today.

22 Q. Other than meeting with
23 Mr. Abney or talking with Mr. Abney -- did
24 you ever meet with Mr. Abney face-to-face?

1 A. No.
2 Q. What other plaintiff lawyers
3 have you met with or talked with as part of
4 your formulating your opinions and doing your
5 literature review?

6 A. We've had a number of
7 conference calls where there were several of
8 these attorneys' colleagues on the line, but
9 in terms of in-person meetings, those have
10 been with Ms. O'Dell and Ms. Thompson,
11 Dr. Thompson.

12 Q. How many meetings have you had
13 with Ms. O'Dell?

14 A. Three.

15 Q. How many meetings have you had
16 with Dr. Thompson?

17 A. Three.

18 Q. Did you know Dr. Thompson
19 before you were retained in this matter?

20 A. I did not.

21 Q. Any other plaintiff lawyers in
22 this litigation that you are aware of --
23 strike that.

24 Any other plaintiff lawyers in

1 A. I have not had any discussions
2 with Dr. Dydek. We may have met previously,
3 but I don't recall.

4 Q. Any previous meeting with
5 Dr. Dydek, did it relate to this litigation?

6 A. No.

7 Q. Did it relate to expert witness
8 work that you were doing?

9 A. No.

10 Q. Do you know what the
11 relationship is, if any, between Dr. Thompson
12 and Dr. Dydek?

13 A. I don't know of any
14 relationship outside of his work as an expert
15 witness in related litigation.

16 Q. Dr. Crowley, do you know
17 Michael Crowley?

18 A. I know of Dr. Crowley.

19 Q. Did you know of Dr. Crowley
20 before you were retained in the talcum powder
21 litigation?

22 A. No.

23 Q. Have you ever met with
24 Dr. Crowley?

1 this matter that you've had communications
2 with other than what you have told us?

3 A. No.

4 Q. Do you have any social
5 relationship with any of the plaintiffs'
6 counsel?

7 A. No.

8 Q. Your relationship with
9 Dr. Thompson is just the three meetings that
10 you have been involved in with her?

11 A. Well, we've exchanged e-mail
12 communications, but other than that, no.

13 Q. Have you met with or talked
14 with any other expert witness for plaintiffs?

15 A. No, I have not.

16 Q. Do you know who Thomas Dydek
17 is?

18 A. Yes.

19 Q. Who is Thomas Dydek?

20 A. He is a toxicologist.

21 Q. Where does he practice?

22 A. I don't recall.

23 Q. Have you had any discussions
24 with Dr. Dydek?

1 A. I have not.

2 Q. Ever talked with Dr. Crowley?

3 A. I have not.

4 Q. You reviewed his report as part
5 of your review in this matter; is that right?

6 A. That's correct.

7 Q. Do you know who any of the
8 other experts are in this litigation for
9 plaintiffs?

10 A. Well, I know there are a number
11 of people who have generated reports that I
12 have also reviewed.

13 Q. What reports have you reviewed
14 from plaintiffs' other experts?

15 A. Well, I've reviewed several
16 reports from Dr. Longo, who's done work on
17 the presence of asbestos in talc products and
18 related things. I think he's the only other
19 expert that I'm aware of at this point.

20 Q. Well, you're aware of
21 Dr. Crowley?

22 A. Well, Dr. Crowley, Dr. Longo,
23 and Dr. Dydek that you mentioned before.

24 Q. Have you reviewed any reports

1 or transcripts from Dr. Dydek? 2 A. Yes, I reviewed an expert 3 report that he provided before I got involved 4 in this case. 5 Q. Did you review that report 6 before you prepared your report? 7 A. Yes. 8 Q. Did you review Dr. Crowley's 9 report before you prepared your report? 10 A. Yes. 11 Q. And you reviewed Dr. Longo's 12 report before you prepared your report; is 13 that right? 14 A. I've reviewed one report. 15 There was another one that became available 16 after. 17 Q. The second report is what you 18 brought here with you today and we marked as 19 Exhibit 5; is that right? 20 A. Yes. 21 Q. Any other plaintiff experts 22 that you're aware of? 23 A. Not that I can think of, no. 24 Q. Any other reports from	Page 50 1 that you're aware of? 2 A. No. 3 Q. Are you aware of any of the 4 experts for defendants in the talcum powder 5 litigation? 6 A. No. 7 Q. Have you reviewed any reports 8 from any of the experts in the talcum powder 9 litigation? 10 A. I have not. 11 Q. Have you reviewed any of the 12 transcripts of defense experts in the talcum 13 powder litigation? 14 A. I've reviewed some deposition 15 transcripts of various witnesses. 16 Q. Those witnesses are all listed 17 in either your references or your literature; 18 is that right? 19 A. Yes. 20 Q. Did you review the entire 21 transcripts of the witnesses that you've 22 identified? 23 A. I think for the most part I 24 would say yes.	Page 52
1 plaintiffs' experts that you have reviewed? 2 A. Well, there's a -- there is an 3 article that's been submitted for publication 4 which I consider a piece of the scientific 5 literature. You mentioned Dr. Saed earlier, 6 and I know that he has a relationship with 7 this case as well. 8 Q. What is his relationship with 9 this case, Dr. Saed? 10 A. He's provided some work at the 11 request of the attorneys here. 12 Q. Have you reviewed that work? 13 A. That's the subject of several 14 articles he's published previously, he and 15 his colleagues, as well as the additional one 16 that I brought today. 17 Q. Other than the articles that 18 you have listed on your reference and 19 literature list and the Saed article that you 20 brought with you today, are you aware of any 21 other work that Dr. Saed has done in this 22 matter? 23 A. No. 24 Q. Any other plaintiff experts	Page 51 1 Q. Did you review the exhibits to 2 those depositions? 3 A. Yes. If they were provided to 4 me, I did, yes. 5 Q. Did you believe that it was 6 your job to do an independent assessment as 7 to whether or not the habitual use of talcum 8 powder causes or can cause ovarian cancer? 9 MS. O'DELL: Object to the 10 form. 11 A. Could you repeat the question, 12 please. 13 BY MR. ZELLERS: 14 Q. Sure. 15 Plaintiffs asked you to -- 16 strike that. 17 Plaintiffs' counsel asked you 18 to answer that question; is that right? 19 A. Yes. 20 Q. You understood that they were 21 looking to develop an association or a causal 22 relationship between the habitual use of 23 talcum powder and ovarian cancer, correct? 24 A. Yes.	Page 53

<p>1 MS. O'DELL: Object to the 2 form. 3 Excuse me, I'm sorry, 4 gentlemen. Give me just one second to 5 object if I need to. 6 THE WITNESS: Sure. 7 MS. O'DELL: Thank you. 8 BY MR. ZELLERS: 9 Q. Did you consider the literature 10 and the sources that refuted that association 11 or causal relationship? 12 A. I tried to consider all the 13 available literature. 14 Q. When you wrote your report 15 setting forth your opinions, did you set 16 forth the sources that refuted the 17 propositions you were making? 18 A. I cited several sources that on 19 the surface might seem to refute my opinions. 20 Q. And you believe that is 21 contained in your report which we marked as 22 Exhibit 2; is that right? 23 A. Yes. 24 Q. Have you been involved in any</p>	<p>Page 54</p> <p>1 A. Probably 5%. 2 Q. What percent of your income 3 comes from the work that you do as a 4 consultant? 5 A. Of course it varies quite a bit 6 from moment to moment, but it would be less 7 than 10%. 8 Q. Have you ever testified at 9 trial? 10 A. Yes. 11 Q. On how many occasions? 12 A. Probably ten. 13 Q. The 30 to 35 depositions that 14 you've given previously, those have been in 15 the context of you providing litigation 16 consulting services; is that right? 17 A. In terms of expert testimony, 18 yes. 19 Q. The trial appearances that 20 you've made, are those also in your capacity 21 as an expert witness? 22 A. Yes. 23 Q. Have you been involved in other 24 litigations?</p> <p>Page 56</p>
<p>1 other talcum powder litigation other than 2 this talc MDL matter that Mr. Abney talked to 3 you about? 4 A. No, I haven't. 5 Q. In the 30 to 35 occasions that 6 you've testified in the past, have any of 7 those been on issues relating to talcum 8 powder and any association between talcum 9 powder and ovarian cancer? 10 A. No. 11 Q. You are not an expert in 12 asbestos, correct? 13 MS. O'DELL: Object to the 14 form. 15 A. I'm an occupational medicine 16 physician, and I have a significant amount of 17 awareness and training regarding asbestos as 18 it relates to occupational exposures and 19 general environmental exposures, but I don't 20 consider myself an asbestos expert. 21 BY MR. ZELLERS: 22 Q. What percentage of your time do 23 you spend working as a consultant? And I'm 24 talking about your professional time.</p>	<p>Page 55</p> <p>1 A. Yes. 2 Q. What other litigations have you 3 been involved in as an expert? 4 A. Well, I've been asked to 5 provide opinions and testify in a number of 6 cases, most of which involved personal injury 7 in the occupational setting or environmental 8 exposures. 9 Q. Has the majority of your expert 10 work in the occupational setting and for 11 environmental exposures been on behalf of 12 plaintiffs? 13 A. No, it's been split about 14 50/50, plaintiff and defense. 15 Q. Have you ever been retained in 16 a case involving cosmetic products? 17 A. No. 18 Q. Your curriculum vitae that we 19 marked as Exhibit 3, is it correct and up to 20 date? 21 A. It was up to date at the time 22 of submission of my report in the end of 23 2018. 24 Q. What additions need to be made</p> <p>Page 57</p>

<p>1 or corrections need to be made to your CV, 2 Exhibit 3, to bring it up to date? 3 A. Well, I've terminated a 4 relationship with the University of Texas 5 Medical Branch in Galveston where I was 6 their -- the medical director of their 7 Employee Health Services Clinic. I continue 8 to be -- serve as an assistant clinical 9 professor of preventive medicine and family 10 medicine at that institution. 11 I have terminated my 12 relationship with the Enbridge Corporation as 13 their medical director. 14 The Spectra Energy entry, which 15 is about the seventh on the list of 16 professional activities, is also terminated 17 as that was a company that was merged and 18 became Enbridge. 19 Q. Any other corrections or 20 updates to your curriculum vitae that we've 21 marked as Exhibit 3? 22 A. No. 23 Q. Why are you no longer serving 24 as medical director, Employee Health Services</p>	<p>Page 58</p> <p>1 is that right? 2 A. Yes. 3 Q. What percentage of your time is 4 spent in the clinical practice of medicine? 5 A. Currently I see patients 6 one-half day a week and work as a supervisor 7 of the occupational medicine residents for 8 additional time during the week, so clinical 9 activities would be about probably 12 hours a 10 week. 11 Q. Do you see or treat women for 12 gynecologic cancer? 13 A. I do not. 14 Q. You have never worked for a 15 company that manufactures cosmetic products, 16 correct? 17 A. That's correct. 18 Q. You're not a gynecologist or an 19 oncologist, correct? 20 A. That's correct. 21 Q. You're not a cancer biologist? 22 MS. O'DELL: Object to the 23 form. 24 A. That's correct.</p> <p>Page 60</p>
<p>1 with the University of Texas? 2 MS. O'DELL: Objection to form. 3 A. That was a contract that I had 4 through the University of Texas Houston 5 College of Nursing that provided those 6 services to UTMB, and UTMB decided to make a 7 change and go with another contractor. 8 BY MR. ZELLERS: 9 Q. Why are you no longer serving 10 as medical director for Spectra Energy 11 Corporation and Enbridge Corporation? 12 A. Well, Spectra Energy no longer 13 exists; it became Enbridge Corporation. And 14 in October of 2018, I determined that I did 15 not -- I no longer had sufficient time to 16 provide that service. 17 Q. Your undergraduate degree was 18 in biologic sciences with a concentration in 19 engineering; is that right? 20 A. Yes. 21 Q. You received a Ph.D. in 22 toxicology; is that right? 23 A. Yes. 24 Q. And then later an M.D. degree;</p>	<p>Page 59</p> <p>1 BY MR. ZELLERS: 2 Q. You are not a geologist, 3 mineralogist or microscopist? 4 A. That's correct. 5 Q. You're not an epidemiologist? 6 A. Well, I may be considered an 7 epidemiologist simply by my appointment as an 8 associate professor in the Department of 9 Epidemiology at the School of Public Health 10 here in Houston. 11 Q. Do you have any professional 12 education in the field -- well, strike that. 13 Have you ever published or 14 conducted a meta-analysis? 15 A. I have conducted meta-analyses. 16 I've not published them. 17 Q. You did not do any type of 18 fellowship in epidemiology, correct? 19 A. That's correct. 20 Q. You're not board certified in 21 epidemiology; is that right? 22 A. I don't believe there is a 23 board certification in epidemiology. 24 Q. You're not a biostatistician or</p> <p>Page 61</p>

1 a pulmonologist?
2 A. That's correct.
3 Q. You're not a material
4 scientist?
5 A. That's correct.
6 Q. Nor are you a pathologist?
7 A. Correct.
8 Q. You've never been involved in
9 any pathological exam or research relating to
10 ovarian cancer; is that right?
11 MS. O'DELL: Object to the
12 form.
13 A. I'm not sure exactly what you
14 mean by your question.
15 BY MR. ZELLERS:
16 Q. Sure. Let me withdraw that.
17 You've never been involved in
18 terms of the research relating to ovarian
19 cancer, correct?
20 A. Not specifically, no.
21 Q. You've never authored any
22 literature or publications relating to talcum
23 powder?
24 A. No.

1 A. I think I had opinions about
2 talcum powder and its constituents, but if
3 you could be more specific, I might be able
4 to give you a more specific answer.
5 BY MR. ZELLERS:
6 Q. Did you ever, before getting
7 involved in this litigation in October of
8 2018, do research -- strike that.
9 You've never published on
10 talcum powder, correct?
11 A. That's correct.
12 Q. You have never published on the
13 constituent components of talcum powder,
14 correct?
15 A. That may not be the case. I've
16 done work in some other minerals which have
17 resulted in publications, for example,
18 vermiculite, which have touched on the issues
19 of asbestos, association with talc,
20 association with other minerals, but never
21 specifically regarding talc.
22 Q. Are those publications on your
23 CV?
24 A. They are.

1 Q. Or relating to ovarian cancer,
2 correct?
3 A. No.
4 Q. Okay. What journals -- well,
5 strike that.
6 You have never published on
7 fragrance chemicals; is that right?
8 MS. O'DELL: Object to the
9 form.
10 A. That's correct.
11 BY MR. ZELLERS:
12 Q. Never done any research on
fragrance chemicals, correct?
13 A. I've done some work with
fragrance chemicals and health effects that
14 are associated with them, but I have not -- I
15 would not classify that as research or
16 publication.
17 Q. You had no opinions regarding
18 talcum powder or any of its constituent
19 components before getting involved in this
20 litigation; is that right?
21 MS. O'DELL: Object to the
22 form.

1 Q. That we marked as Exhibit 3?
2 A. Yes.
3 Q. Okay. Have you ever
4 communicated with the FDA regarding talcum
5 powder?
6 A. I've not.
7 Q. Have you ever communicated with
8 Health Canada regarding talcum powder?
9 A. No.
10 Q. When did you first start
11 preparing your report which we've marked as
12 Exhibit 2?
13 A. Well, I began a literature
14 review immediately after talking to
15 Mr. Abney.
16 Q. My question, I guess, is: When
17 did you start writing your report?
18 A. Well, technically I started
19 writing my report after I was retained by
20 plaintiffs' counsel.
21 Q. Late October, early
22 November 2018?
23 MS. O'DELL: Object to the
24 form, misstates his prior testimony.

<p>1 A. In October of 2018.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. Have you reviewed any of the</p> <p>4 deposition transcripts of any of the experts</p> <p>5 that have been deposed in this litigation?</p> <p>6 A. Yes.</p> <p>7 Q. What deposition transcripts of</p> <p>8 experts have you reviewed?</p> <p>9 A. Oh, of experts? No, I have not</p> <p>10 reviewed -- well, I've reviewed -- I've</p> <p>11 reviewed expert depositions, but I don't know</p> <p>12 what case they were deposed in, but it</p> <p>13 relates to talcum powder and ovarian cancer</p> <p>14 issue.</p> <p>15 Q. What expert depositions have</p> <p>16 you reviewed?</p> <p>17 A. They're all cited in the</p> <p>18 literature exhibit.</p> <p>19 Q. All of the deposition</p> <p>20 transcripts that you've reviewed are cited in</p> <p>21 Exhibit 4?</p> <p>22 A. I think any of the transcripts</p> <p>23 that I review are -- reviewed are probably</p> <p>24 included in here.</p>	<p>1 and bolts of what goes on legally in this</p> <p>2 case. I know there are multiple lawsuits,</p> <p>3 and I'm not sure which ones those -- these</p> <p>4 are pertinent to.</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. My question is a little</p> <p>7 different and I hope pretty simple: In</p> <p>8 addition to the depositions, transcripts and</p> <p>9 reports that you have listed on pages 27 and</p> <p>10 28 of Exhibit 4, your literature list, are</p> <p>11 there any additional depositions or</p> <p>12 transcripts that you've reviewed?</p> <p>13 A. Pardon me for a moment while I</p> <p>14 review this.</p> <p>15 (Document review.)</p> <p>16 A. No, I'm not aware that there</p> <p>17 are.</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. Your testimony earlier was that</p> <p>20 you have reviewed each of those depositions</p> <p>21 in their entirety; is that right?</p> <p>22 A. Yes.</p> <p>23 Q. You have also reviewed the</p> <p>24 exhibits to those depositions; is that right?</p>
<p>1 Q. Are you aware of reviewing any</p> <p>2 transcripts that you did not include in your</p> <p>3 literature statement?</p> <p>4 A. I'm not aware, but I can't tell</p> <p>5 you as I'm sitting here right now whether all</p> <p>6 of those are included in this literature</p> <p>7 statement or not.</p> <p>8 Q. You -- looking at page --</p> <p>9 MS. O'DELL: I'm sorry. Go</p> <p>10 ahead.</p> <p>11 BY MR. ZELLERS:</p> <p>12 Q. Are there any that you believe</p> <p>13 you have reviewed that are not included in</p> <p>14 the literature statement?</p> <p>15 A. Well, let me just see here.</p> <p>16 There are --</p> <p>17 MS. O'DELL: I think they're at</p> <p>18 the end, Dr. Carson.</p> <p>19 THE WITNESS: At the very end.</p> <p>20 A. Beginning on page 27 is a list</p> <p>21 of the depositions, transcripts and reports</p> <p>22 that I've reviewed, which include some of the</p> <p>23 expert witnesses, but again, I would have to</p> <p>24 say I'm -- I'm sort of unaware of the nuts</p>	<p>1 A. If they were made available to</p> <p>2 me, I've looked at all those exhibits as</p> <p>3 well.</p> <p>4 Q. On page 27 of Exhibit 4, who is</p> <p>5 Annie Yessaian?</p> <p>6 A. On page 24?</p> <p>7 Q. Strike that. I'm sorry. On</p> <p>8 page 27 of Exhibit 4 --</p> <p>9 A. I see.</p> <p>10 Q. -- at the bottom, who is Annie</p> <p>11 Yessaian?</p> <p>12 A. I don't recall.</p> <p>13 Q. You reviewed her entire</p> <p>14 transcript and you don't recall who she is?</p> <p>15 A. I don't.</p> <p>16 Q. Well, go to the next page. Who</p> <p>17 is Pat Downey?</p> <p>18 A. I believe Pat Downey is an</p> <p>19 operative of the Imerys company.</p> <p>20 Q. Do you know what Mr. Downey's</p> <p>21 position is?</p> <p>22 A. It's a supervisory position</p> <p>23 regarding -- regarding quality of the talc</p> <p>24 product.</p>

1 Q. Who is John Hopkins?
2 A. John Hopkins is an official, I
3 believe, of -- I'm not sure -- of Johnson &
4 Johnson, I believe, who has some oversight of
5 talc quality as well.

6 Q. Susan Nicholson, who is she?

7 A. I don't recall.

8 Q. Who is Julie Pier?

9 A. Julie Pier is another scientist
10 who works for Imerys, who is responsible for
11 testing and quality.

12 Q. In your clinical and academic
13 practice, do you typically rely upon
14 depositions of company witnesses or experts?

15 MS. O'DELL: Object to the
16 form.

17 A. If there's pertinent
18 information in there that leads me to other
19 areas or helps me formulate my opinions, then
20 yes.

21 BY MR. ZELLERS:

22 Q. In the papers and publications
23 that you have identified in your curriculum
24 vitae, Exhibit 3, do you ever recall citing

1 BY MR. ZELLERS:

2 Q. Once you looked at these
3 documents, the Imerys documents and the
4 documents produced by the Johnson & Johnson
5 companies, did you ask plaintiffs' counsel
6 for any additional documents?

7 A. I did not. My understanding is
8 that most of these are reports, testing
9 reports, and most of them are positive
10 results regarding the presence of asbestos or
11 fibers in the product. And I know that there
12 were many others that may not have shown
13 positive results that I did not look at.

14 Q. Did you ask the plaintiff
15 attorneys to show you or provide you with the
16 testing documentation that showed an absence
17 of asbestos or asbestos fibers in the talcum
18 powder?

19 A. Regarding the test results that
20 are equivalent to these that were negative,
21 no, I did not request those.

22 Q. Did you review documents
23 relating to any fragrance chemicals that are
24 contained in or that you believe are

1 to company witness deposition testimony?

2 A. I don't typically cite
3 deposition testimonies in published papers.

4 Q. You cite to various company
5 documents. This is on pages 29 to 30 of
6 Exhibit 4, your list of literature; is that
7 right?

8 A. Yes.

9 Q. Did you rely on these documents
10 in formulating your opinions?

11 A. Yes.

12 Q. Were these documents selected
13 for you by plaintiffs' counsel?

14 A. Yes, they were.

15 Q. Are you able to identify what
16 each of the documents are?

17 MS. O'DELL: Based on the Bates
18 number?

19 MR. ZELLERS: Based on the
20 Bates numbers.

21 A. No, I am not. I would have to
22 look at each individual document to refresh
23 my memory as to what it contains.

24 ///

1 contained in the talcum powder?

2 A. Yes. I did review some lists
3 and, of course, Dr. Crowley's report.

4 Q. Do you have any idea or
5 understanding as to the amount or amounts of
6 the fragrance chemicals that are contained in
7 the talcum powder in either the Johnson &
8 Johnson Consumer company talcum powder that's
9 involved in this litigation?

10 MS. O'DELL: Object to the
11 form.

12 MR. ZELLERS: Let me withdraw
13 that.

14 BY MR. ZELLERS:

15 Q. Do you know or have any
16 understanding as to the amounts of fragrance
17 chemicals that are in the talcum powder?

18 A. I do not have the specific
19 formulation or quantities of those substances
20 that contributed to the products.

21 Q. Do --

22 MS. O'DELL: Excuse me.

23 MR. ZELLERS: Ms. O'Dell,
24 please, I'm going to let the doctor

<p>1 finish.</p> <p>2 MS. O'DELL: In that instance,</p> <p>3 I don't know that he was, and so if he</p> <p>4 was, my apologies.</p> <p>5 MR. ZELLERS: It's okay.</p> <p>6 MS. O'DELL: I've been on my</p> <p>7 best behavior today, as you know,</p> <p>8 so -- but I don't want the witness to</p> <p>9 feel as if they're being cut off, and</p> <p>10 because Dr. Carson is a very polite</p> <p>11 gentlemen, he would let you interrupt</p> <p>12 him.</p> <p>13 MR. ZELLERS: Of course.</p> <p>14 MS. O'DELL: And I don't think</p> <p>15 that's fair.</p> <p>16 So, Dr. Carson, if you're</p> <p>17 finished, great. If you're not, you</p> <p>18 may continue.</p> <p>19 A. Well, I was going to say that</p> <p>20 my opinion is that there are very small</p> <p>21 quantities of those substances that</p> <p>22 contribute to the fragrance component.</p> <p>23 BY MR. ZELLERS:</p> <p>24 Q. Do you know how those</p>	<p>1 understanding of business practices and these</p> <p>2 types of industries, I've reviewed an</p> <p>3 extremely small percentage of those.</p> <p>4 Q. Is it your practice in your</p> <p>5 academic work or your clinical research work</p> <p>6 to rely on internal company documents?</p> <p>7 A. Yes, it is.</p> <p>8 Q. Do you rely on internal company</p> <p>9 documents when you publish papers?</p> <p>10 A. In some cases.</p> <p>11 Q. Can you tell me in what cases</p> <p>12 or instances you have relied on internal</p> <p>13 company documents in your publications?</p> <p>14 A. Well, for example, I did -- I</p> <p>15 was involved in some research work in</p> <p>16 conjunction with NIOSH at the O.M. Scott</p> <p>17 Company at Marysville, Ohio, where we did</p> <p>18 a -- we performed a research in the company</p> <p>19 and relied on some internal documents in</p> <p>20 terms of gauging concentrations, industrial</p> <p>21 hygiene records and so forth, in order to</p> <p>22 draw conclusions that were pertinent to those</p> <p>23 publications.</p> <p>24 Q. Was that data or were those</p>
<p>1 quantities of fragrance chemicals may have</p> <p>2 changed over the years?</p> <p>3 A. My understanding is they have</p> <p>4 not changed dramatically, but there have been</p> <p>5 certain substitutions over time.</p> <p>6 Q. Do you agree that to the extent</p> <p>7 that you have reviewed internal documents,</p> <p>8 either of Imerys or from Johnson & Johnson</p> <p>9 companies, that you have only reviewed the</p> <p>10 documents that were hand-selected by the</p> <p>11 plaintiff lawyers for you to review?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 A. I agree that the only documents</p> <p>15 that I've reviewed regarding the internal</p> <p>16 products of Johnson & Johnson or Imerys are</p> <p>17 the ones that were provided by the</p> <p>18 plaintiffs' attorneys.</p> <p>19 BY MR. ZELLERS:</p> <p>20 Q. Do you know what percentage of</p> <p>21 the documents that have been produced in this</p> <p>22 litigation by the Johnson & Johnson companies</p> <p>23 and by Imerys you have reviewed?</p> <p>24 A. Well, based on my general</p>	<p>1 internal communications that you relied on?</p> <p>2 A. They were both.</p> <p>3 Q. What is the publication on your</p> <p>4 CV where you relied on those materials?</p> <p>5 A. Well, let me see here. I think</p> <p>6 the first author -- looking back here -- the</p> <p>7 first author would be Jim Lockey.</p> <p>8 Q. Looking at page 6?</p> <p>9 A. It's on page 6, and the --</p> <p>10 there are two publications there. One is</p> <p>11 Pulmonary Changes After Exposure to</p> <p>12 Vermiculite Contaminated With Fibrous</p> <p>13 Tremolite that appeared in the American</p> <p>14 Review of Respiratory Disease in 1984.</p> <p>15 There's another publication</p> <p>16 which is a book chapter called Pulmonary</p> <p>17 Hazards From Vermiculite that appeared in a</p> <p>18 book titled Health Issues Related to Metal</p> <p>19 and Nonmetallic Mining.</p> <p>20 Q. Do you agree that when you have</p> <p>21 been provided only a small subset of the</p> <p>22 documents of a company relating to a</p> <p>23 particular product, that those documents can</p> <p>24 potentially be misleading?</p>

1 MS. O'DELL: Object to the 2 form. 3 A. I don't agree that that's the 4 case because I am capable of understanding 5 that it's a subset of available information, 6 and I can make a reliable determination on 7 the pertinence of that material regardless. 8 BY MR. ZELLERS: 9 Q. Without looking at any other 10 documents or any documents that may put the 11 documents you were provided in context? 12 MS. O'DELL: Object to the 13 form. 14 A. It depends on the specific 15 case, but I would say in most cases, yes. 16 BY MR. ZELLERS: 17 Q. In this case, it was not 18 necessary for you to look at any documents 19 other than those specific documents the 20 plaintiffs provided to you; is that your 21 testimony? 22 MS. O'DELL: Object to the 23 form. 24 A. Regarding the contribution to	Page 78 1 department? 2 A. She's in my department, yes. 3 Q. You understand she's a 4 lawyer -- strike that. 5 You understand she's an expert 6 for the plaintiffs in this litigation? 7 A. I didn't know that. 8 Q. Dr. Ness never told you that 9 she was an expert witness for plaintiffs in 10 this matter? 11 A. No, we didn't discuss this 12 case. We only discussed the issue. 13 Q. Any other colleagues that you 14 discussed your report and opinions with? 15 MS. O'DELL: Object to the 16 form. 17 A. I think I shared some of my 18 thinking with the occupational medicine 19 residents as a group and asked them to 20 consider certain issues in the case. 21 BY MR. ZELLERS: 22 Q. Did they contribute to your 23 review and analysis and opinions? 24 A. We had an interesting	Page 80	
1 my opinions, I would say, yes, it was not 2 necessary. 3 BY MR. ZELLERS: 4 Q. Did you do any independent 5 investigation to reach your opinions, other 6 than the literature search and review of 7 websites that you told us about earlier? 8 A. Other than just general 9 discussion with colleagues, no. 10 Q. Did any of the colleagues that 11 you spoke with provide you with any 12 substantive support for your opinions? 13 A. Not that I can recall. It was 14 mostly just helpful feedback. 15 Q. The colleagues that you spoke 16 with were who? 17 A. Various colleagues in my 18 department or in the School of Public Health. 19 Q. Who? 20 A. Well, Dr. George Delclos, who 21 is a pulmonologist; Dr. Brett Perkison, who 22 is an occupational medicine physician; 23 Roberta Ness, who is an epidemiologist. 24 Q. Roberta Ness is in your	Page 79 1 discussion, but I don't think that changed my 2 opinions in any way. 3 Q. The opinions that you're 4 expressing in this case are your opinions; is 5 that right? 6 A. That's correct. 7 Q. Your opinions you set forth in 8 your report beginning on page 7; is that 9 right? 10 A. Let me refer to my report, if 11 you don't mind. 12 MS. O'DELL: Object to the 13 form. 14 A. I would say -- I would say in 15 answer to that question that, yes, my 16 opinions do begin on page 7 of the report. 17 BY MR. ZELLERS: 18 Q. Your first opinion set forth on 19 page 7 is that talcum powder is immunogenic 20 and carcinogenic; is that right? 21 A. Yes. 22 MS. O'DELL: Excuse me. 23 BY MR. ZELLERS: 24 Q. Your second opinion is that	Page 81	

<p>1 perineal use of talcum powder results in 2 direct exposure to the ovaries either via 3 inhalation or migration through the female 4 reproductive tract, correct?</p> <p>5 A. I would not phrase the opinion 6 in that way, but in general, that is my 7 opinion, yes.</p> <p>8 Q. How would you phrase your 9 second opinion?</p> <p>10 A. I think my second opinion 11 relates mostly to the direct exposure to the 12 reproductive tract that perineal use of 13 talcum powder produces.</p> <p>14 Q. Are you opining as to 15 inhalation as an exposure of talcum powder to 16 women's ovaries?</p> <p>17 MS. O'DELL: Object to the 18 form.</p> <p>19 A. Only as a secondary route of 20 exposure.</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. Is it part of your opinions or 23 do you defer to other experts on inhalation?</p> <p>24 A. I would include that as my</p>	<p>Page 82</p> <p>1 MS. O'DELL: Object to the 2 form. 3 A. It's an anatomical fact. The 4 physiology of the reproductive system does 5 not provide the ovaries with the kind of 6 clearance system that, for example, the lungs 7 would have for inhaled exposures.</p> <p>8 BY MR. ZELLERS:</p> <p>9 Q. The words "no intrinsic 10 elimination system," are those your words or 11 are those words that you've seen reported in 12 another study or another paper?</p> <p>13 A. I think that's a fairly generic 14 description, that those are my words.</p> <p>15 Q. Your fourth opinion is that you 16 believe that the epidemiological studies on 17 talcum powder and ovarian cancer show about a 18 30% increased risk; is that right?</p> <p>19 A. Correct.</p> <p>20 MS. O'DELL: Object to the 21 form.</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q. As you told us at the outset, 24 those are all still your opinions, although</p>
<p>1 opinion.</p> <p>2 Q. So you're testifying here today 3 that the perineal use of talcum powder 4 results in direct exposure to the ovaries 5 through migration through the female 6 reproductive tract and that inhalation also 7 results in exposure of talcum powder to the 8 ovaries; is that right?</p> <p>9 A. That is correct, but my basic 10 opinion is that perineal use of talcum powder 11 exposes the entire reproductive tract, 12 including the pelvic cavity. So it's a bit 13 more extensive than your phrasing.</p> <p>14 Q. Your third opinion is very 15 similar to your first opinion, except that 16 here you add that it's your opinion that the 17 ovaries are particularly susceptible to the 18 carcinogenicity of talcum powder because they 19 have, in your words, "no intrinsic 20 elimination system"; is that right?</p> <p>21 A. That's correct.</p> <p>22 Q. Is that something you came up 23 with on your own, no intrinsic elimination 24 system?</p>	<p>Page 83</p> <p>1 you do believe even stronger that there is a 2 causal association between talcum powder and 3 ovarian cancer; is that right?</p> <p>4 A. That's correct.</p> <p>5 Q. Have you published on your 6 theory that baby powder causes ovarian 7 cancer?</p> <p>8 A. No.</p> <p>9 Q. Do you have plans to do that?</p> <p>10 A. Not presently.</p> <p>11 Q. Have you conducted any tests or 12 experiments to confirm your theory that talc 13 migrates to the ovaries?</p> <p>14 MS. O'DELL: Object to the 15 form.</p> <p>16 A. These are conclusions that I 17 have drawn based on published literature. I 18 wouldn't characterize them as a theory. I 19 think they're pretty much established fact.</p> <p>20 BY MR. ZELLERS:</p> <p>21 Q. I'm going to ask you about all 22 these opinions, and so we'll go through the 23 literature and determine -- or at least I'll 24 ask you questions about why you think that</p>

1 some of these matters are established fact. 2 My question is: Did you do any 3 tests or experiments as part of your review 4 and analysis in this matter? 5 A. I did not. 6 Q. Did you do any tests or 7 experiments relating to your opinion that 8 talc causes cancer via inflammation? 9 A. I did not. 10 Q. Can you identify any article 11 that identifies inflammation anywhere in a 12 woman's reproductive tract that results from 13 external genital talc application? 14 MS. O'DELL: Object to the 15 form. 16 A. I think there are a number of 17 published articles that allude to that 18 relationship and draw a fairly strong 19 conclusion that it exists. 20 MS. O'DELL: Mike, excuse me, 21 and I'm sorry to interrupt. We've 22 been going over an hour and a half. 23 Are you at a point where we can take 24 just a short break for...	Page 86 1 you aware of any article that identifies 2 inflammation in a woman's reproductive tract 3 resulting from external genital talc 4 application? 5 MS. O'DELL: Object to the 6 form. 7 A. I would say that the studies 8 which have looked at that have relied on the 9 result of internal application to show 10 migration. There have been studies that have 11 shown inflammation as the result of talc, and 12 in my opinion, external application is the 13 same as internal application in the 14 reproductive tract. 15 BY MR. ZELLERS: 16 Q. I don't mean to be 17 argumentative, and I don't want to be, but 18 can you name me an article that identifies 19 inflammation in a woman's reproductive tract 20 resulting from external genital talc 21 application? 22 MS. O'DELL: Objection, asked 23 and answered. 24 A. I can't specifically.
1 MR. ZELLERS: Sure, we can. 2 Let me just ask these couple of 3 questions, and then we'll take a 4 break. 5 MS. O'DELL: Sure. 6 BY MR. ZELLERS: 7 Q. So please identify for me any 8 articles that you have reviewed that identify 9 inflammation anywhere in a woman's 10 reproductive tract resulting from external 11 genital talc application. 12 MS. O'DELL: Objection to form. 13 A. I think -- I think the research 14 evidence that includes the epidemiology 15 piece, which is limited to external 16 application of talcum powder, has significant 17 enough correspondence with the biological 18 experimentation literature that it allows us 19 to draw those conclusions. 20 BY MR. ZELLERS: 21 Q. I understand you've drawn some 22 conclusions here, and I'm going to ask you 23 about these conclusions. 24 But what my question is: Are	Page 87 1 MR. ZELLERS: Let's take a 2 break. 3 THE VIDEOGRAPHER: We're off 4 the record, 10:37, end of Tape 1. 5 (Recess taken, 10:37 a.m. to 6 10:55 a.m.) 7 THE VIDEOGRAPHER: We're on the 8 record at 10:55, beginning of Tape 2. 9 BY MR. ZELLERS: 10 Q. Dr. Carson, two of the things 11 that you have reviewed since authoring your 12 report in November of 2018 that you believe 13 support your conclusions in this matter and 14 your opinions in this matter are the draft 15 screening assessment from Health Canada, 16 which we marked as Exhibit 9, and the Taher 17 paper, which has been marked as Exhibit 7; is 18 that right? 19 A. Yes. 20 Q. Have you looked into what other 21 public health authorities, other than 22 Health Canada, have had to say about talc and 23 ovarian cancer? 24 A. Yes, I have.

<p>1 Q. Did you -- strike that. 2 Are you familiar with the 3 Center for Disease Control in the United 4 States? 5 A. Yes. 6 Q. Did you review the CDC and its 7 position on any relationship between talcum 8 powder and ovarian cancer? 9 A. That may have been part of my 10 review, but I don't specifically recall now 11 what the CDC has on that issue. 12 Q. CDC does not list talc or 13 talcum powder as a risk factor for ovarian 14 cancer, correct? 15 A. It's quite possible. 16 Q. Mayo Clinic and a number of 17 medical centers do not list talc as a risk 18 factor for ovarian cancer, correct? 19 A. That may be true. 20 Q. Did you consider, or are you 21 familiar with the National Cancer Institute? 22 A. I am. 23 Q. National Cancer Institute is a 24 leading health authority in the United</p>	<p>Page 90</p> <p>1 MR. ZELLERS: I'm asking the 2 doctor a question. 3 MS. O'DELL: Okay. 4 MR. ZELLERS: So -- 5 MS. O'DELL: That's specific 6 language, and if you have specific 7 language that you're reading from the 8 report or you've taken from the 9 report, I would just ask that you show 10 the doctor. 11 MR. ZELLERS: Ms. O'Dell, I 12 have my question. I'm asking my 13 question. The doctor can either 14 answer my question or not answer my 15 question. I'm not reading from a 16 document. I'm reading from my notes. 17 MS. O'DELL: I object to the 18 form of the question. I think it's 19 unfair. 20 MR. ZELLERS: Can you answer 21 that question, Doctor? 22 A. I would agree that that 23 restates the general opinion of the NCI as 24 published, but in order to verify the</p>
<p>1 States; is that right? 2 A. Yes. 3 Q. Particularly in the area of 4 cancer and materials that may or may not be 5 carcinogenic; is that right? 6 A. Well, the National Cancer 7 Institute is responsible for guiding national 8 research policies as it relates to cancers, 9 and that's one of their considerations is 10 substances that may be related to cancer. 11 Q. When you reviewed what the 12 National Cancer Institute has determined with 13 respect to talcum powder and whether or not 14 it is a risk factor for ovarian cancer, what 15 did you find? 16 A. The most recent publication 17 that I viewed discounts the relationship. 18 Q. In fact, the National Cancer 19 Institute has concluded that the weight of 20 the evidence does not support an association 21 between perineal talc exposure and increased 22 risk of ovarian cancer; is that right? 23 MS. O'DELL: Are you reading a 24 quote from the document?</p>	<p>Page 91</p> <p>1 specific wording, I would need to look at the 2 document. 3 BY MR. ZELLERS: 4 Q. Why would you rely on 5 Health Canada but not these other public 6 health organizations, including Center for 7 Disease Control and the National Cancer 8 Institute? 9 A. Well, there are a number of 10 reasons. There are lots of public health 11 organizations. Many of them have different 12 interests and different approaches in the way 13 that they address problems. For example, 14 discussing the National Cancer Institute, its 15 primary focus is on research and treatments 16 regarding cancers, not necessarily causes, 17 but it is a funder of basic research in the 18 United States. 19 Health Canada is an 20 organization whose charge is to -- is to 21 synthesize public health-related positions 22 based on evidence and disseminate those to 23 public -- the public through various 24 healthcare organizations or agencies. And</p>

<p>1 for that reason, I think it's important to 2 look at the different focus. 3 Also, the Health Canada report 4 is a more contemporaneous report, which has 5 been based on more recent science than has 6 been considered either by the NCI or some of 7 the other public health organizations. 8 Q. The NCI's most recent update to 9 its publication was January of 2019; is that 10 right? 11 MS. O'DELL: Object to the 12 form. 13 A. It's current in terms of its 14 publication. I don't know that it's January 15 of '19; it may be. But it's still not based 16 on the most recently available literature. 17 BY MR. ZELLERS: 18 Q. But Health Canada is; is that 19 right? 20 A. Health Canada is based on more 21 recent literature than the NCI position. 22 Q. Health Canada and its 23 assessment is based upon the meta-analysis by 24 Taher that we've marked as Exhibit 7; is that </p>	<p>Page 94</p> <p>1 very beginning of the public comment period, 2 correct? 3 A. Yes. 4 Q. You agree that Health Canada 5 can take up to two years to either take 6 action or no action at all; is that right? 7 A. I don't know that to be the 8 case, but it very well could be. 9 Q. How did you come to learn of 10 the Health Canada risk assessment? 11 A. I believe the attorneys let me 12 know about it. 13 Q. The attorneys for plaintiffs in 14 this matter that retained you? 15 A. Yes. 16 Q. Were you involved in the Health 17 Canada risk assessment prior to its 18 publication? 19 A. No. 20 Q. Have you submitted any comments 21 to Health Canada? 22 A. Not yet. 23 Q. Do you intend to submit 24 comments to Health Canada?</p> <p>Page 96</p>
<p>1 right? 2 A. It is. 3 MS. O'DELL: Object to the 4 form. 5 BY MR. ZELLERS: 6 Q. You have reviewed that paper 7 and you believe it supports and strengthens 8 your opinions in this case; is that right? 9 A. Yes. 10 Q. Does the National Cancer 11 Institute review the peer-reviewed literature 12 as it relates to risk factors for ovarian 13 cancer? 14 A. They have a number of 15 committees that are set up for that purpose, 16 and it is -- it's a committee approach which 17 is handled by a committee chairperson. The 18 National Cancer Institute itself has some 19 oversight of that process, but they defer to 20 the committee chairs. 21 Q. You understand that the Health 22 Canada assessment is a draft; is that right? 23 A. Yes. 24 Q. You understand that it's at the </p>	<p>Page 95</p> <p>1 A. I might. 2 Q. What comments do you intend to 3 submit to Health Canada? 4 A. I haven't formulated them yet. 5 Q. Outside of litigation, do you 6 generally rely on draft assessments by 7 regulatory agencies? 8 MS. O'DELL: Object to the 9 form. 10 A. Yes. 11 BY MR. ZELLERS: 12 Q. Are you familiar with the 13 precautionary principle? 14 A. I am. 15 Q. What is the precautionary 16 principle? 17 A. The precautionary principle 18 states that changes should take place in the 19 face of a potential hazard until that hazard 20 is proved not to exist. It's a general 21 precept that's used in the EU, for example, 22 and very different from the one that operates 23 in this country. 24 Q. The principle in this country </p> <p>Page 97</p>

<p>1 is that there needs to be scientific evidence 2 in order to take action; is that right? 3 MS. O'DELL: Object to the 4 form. 5 A. Yes, that's correct. 6 BY MR. ZELLERS: 7 Q. The precautionary principle 8 says even before there's full or complete 9 scientific demonstration of cause and effect, 10 it is appropriate to take a precautionary 11 approach; is that right? 12 A. That's right. 13 Q. The Health Canada follows -- 14 strike that. 15 Health Canada follows and has 16 adopted a precautionary approach; is that 17 right? 18 A. Yes. 19 Q. Please review 20 Deposition Exhibit 14. 21 (Carson Deposition Exhibit 14 22 marked.) 23 BY MR. ZELLERS: 24 Q. Deposition Exhibit 14 is the</p>	<p>Page 98</p> <p>1 Did I read that correctly? 2 A. You did. 3 Q. Is that your understanding of 4 what a precautionary approach is? 5 A. Yes. In general, the 6 precautionary principle can be restated that 7 an ounce of prevention is worth a pound of 8 cure. 9 Q. Health Canada does not require 10 a finding of causation such as required in 11 litigation matters in this country, the 12 United States; is that right? 13 A. In order to adopt a document 14 that has a significant effect on general 15 public health practices, no, it does not. 16 Q. The Taher paper, that's another 17 paper that you have reviewed since you 18 published your report; is that right? 19 A. Which paper? I'm sorry. 20 Q. This is what we've marked as 21 Exhibit 7. You brought it with you here 22 today? 23 A. Okay. Yes. 24 Q. You've read the Taher 2018</p>
<p>1 Health Canada Decision-Making Framework for 2 Identifying, Assessing and Managing Health 3 Risk. 4 Do you see that? 5 A. Yes. 6 Q. If you go to page 5 of 7 Exhibit 14 -- 8 MS. O'DELL: Feel free to 9 take -- review the document if you're 10 not familiar with it, Dr. Carson. 11 BY MR. ZELLERS: 12 Q. One of the underlying 13 principles in the Health Canada 14 decision-making framework is use a 15 precautionary approach; is that right? 16 A. That's right. 17 Q. If we go to page 8, Health 18 Canada defines the use of a precautionary 19 approach, and looking at the second sentence: 20 A precautionary approach to decision-making 21 emphasizes the need to take timely and 22 appropriate preventative action, even in the 23 absence of a full scientific demonstration of 24 cause and effect.</p>	<p>Page 99</p> <p>1 manuscript; is that right? 2 A. Yes. 3 Q. Where did you obtain that 4 manuscript from? 5 A. This was obtained directly from 6 one of the coauthors on this study to the 7 plaintiffs' attorneys, who passed it along to 8 me. 9 Q. So one of the coauthors on this 10 study gave it to the plaintiffs' counsel, who 11 then gave it to you; is that right? 12 A. That's correct. 13 Q. Who was the author of this 14 publication, Exhibit 7, that provided the 15 paper to plaintiffs' counsel, if you know? 16 A. I don't recall. 17 Q. But one of these authors; is 18 that right? 19 A. It would -- yes. 20 Q. Why did you not include this 21 paper on either your reliance list or your 22 literature list? 23 A. I didn't have it at the time 24 that those were formulated.</p>

<p>1 Q. Did you have access to the 2 appendices and supplemental tables that are 3 referred to in the Taher 2018 publication 4 which we've marked as Exhibit 7? 5 A. The ones that are not in 6 this -- in this document or -- 7 Q. Yes. 8 A. Those -- I have not thoroughly 9 examined those, but I do have access to them. 10 Q. How do you have access to those 11 appendices and supplemental tables? 12 A. They were also provided to me 13 by plaintiffs' counsel. 14 Q. Has the Taher publication, 15 which we've marked as Exhibit 7, been peer 16 reviewed? 17 A. It's in the process. This is a 18 manuscript that's just been accepted for 19 publication, so it has gone through peer 20 review. 21 Q. It has gone through peer 22 review -- 23 A. That's my understanding. 24 Q. -- and Exhibit 7 is the article</p>	<p>Page 102</p> <p>1 A. Yes, I have. 2 Q. Do you know any of the authors 3 of this paper, Exhibit 7? 4 A. No, I don't. 5 Q. Do you know the source of 6 funding for this paper? 7 A. I -- I think the sources of 8 funding are mentioned in here. 9 Q. Other than what's mentioned in 10 the paper, Exhibit 7, do you have any 11 knowledge as to the sources of funding? 12 A. There's a combination of 13 sources. In part, this work is funded 14 through the plaintiffs' attorneys. 15 Q. Have you communicated with any 16 of the authors of this paper? 17 A. No. 18 Q. Do you know the credentials of 19 any of the authors of this paper? 20 A. I haven't investigated that. 21 Q. In your epidemiological work 22 outside of litigation, do you rely on 23 articles that are funded at least in part by 24 plaintiffs' counsel in litigation?</p> <p>Page 104</p>
<p>1 that you believe will be published; is that 2 right? 3 A. This is a -- this is a working 4 manuscript which has gone through at least 5 part of the peer-review process. There may 6 be minor edits that occur to this, but this 7 is substantially the final article. 8 Q. How do you know that? 9 A. That's the general process of 10 submitting publications to peer-reviewed 11 article -- journals. 12 Q. How do you know -- I'm sorry, 13 did you finish? 14 A. I'm finished. 15 Q. How did you know the status of 16 the peer-review process with respect to 17 Exhibit 7? 18 A. Because it's been accepted for 19 publication. 20 Q. How do you know that? 21 A. That, I was told by the 22 plaintiffs' attorneys. 23 Q. And you've accepted that; is 24 that right?</p>	<p>Page 103</p> <p>1 A. If the articles represent good 2 science, I don't really pay much attention or 3 worry about the funding source. 4 Q. Do you know what conflicts of 5 interest any of the authors have? 6 A. I don't know specifically. I 7 can't recall if they're outlined in here. 8 But the -- those are also evaluated based on 9 the peer-review process. 10 Q. Do you know whether some of the 11 authors are serving as consultants to 12 plaintiffs' counsel in this litigation? 13 A. I know that -- no, I don't know 14 that. Excuse me, I gave an incorrect answer. 15 Q. Sure. Correct it, please. 16 A. I mentioned that part of the 17 funding for this research came from 18 plaintiffs' counsel, and I'm not -- I don't 19 know that that's the case. I was thinking of 20 another research report when I said that. 21 Q. Do you know whether or not, at 22 least in part, funding for this paper, the 23 Taher paper, came from plaintiffs' counsel? 24 A. No, I don't.</p> <p>Page 105</p>

<p>1 Q. Taher, this paper, Exhibit 7, 2 concludes that asbestos contamination does 3 not explain ovarian cancer, correct? 4 A. It does come to that general 5 conclusion.</p> <p>6 Q. That's a different conclusion 7 than you have formulated in this matter; is 8 that right?</p> <p>9 A. No, it's not.</p> <p>10 Q. You agree that asbestos 11 contamination does not explain ovarian 12 cancer; is that right?</p> <p>13 A. It doesn't completely explain 14 ovarian cancer.</p> <p>15 Q. Does it explain ovarian cancer?</p> <p>16 MS. O'DELL: Objection, asked 17 and answered.</p> <p>18 A. I -- I don't believe it 19 completely explains ovarian cancer, no.</p> <p>20 BY MR. ZELLERS:</p> <p>21 Q. Turn to page 41 of Exhibit 7. 22 Look at the last three lines of the paper. 23 The authors of the Taher publication state: 24 The similarity of findings between studies</p>	<p>Page 106</p> <p>1 factors is consistency; is that right? 2 A. Yes. 3 Q. You, in fact, are opining in 4 this case that there is consistency among the 5 talcum powder ovarian cancer studies and 6 publications; is that right? 7 A. Yes. 8 Q. The authors of the Taher paper 9 disagree with that conclusion; is that right? 10 MS. O'DELL: Object to the 11 form. 12 A. I don't think they disagree 13 with that. 14 BY MR. ZELLERS: 15 Q. Turn to page 25, Table 2. This 16 is, again, something that you have reviewed 17 in preparation for your deposition; is that 18 right? 19 A. Well, I didn't review it in 20 preparation for the deposition, but I've 21 reviewed it recently. 22 Q. At the request of plaintiffs' 23 counsel, correct? 24 A. Yes.</p> <p>Page 108</p>
<p>1 published prior to and after this point 2 suggest asbestos contamination does not 3 explain the positive association between 4 perineal use of talc powder and the risk of 5 ovarian cancer.</p> <p>6 Did I correctly state their 7 conclusion?</p> <p>8 A. Well, there was a final clause 9 of the sentence, but yes, you correctly read 10 that.</p> <p>11 Q. The Taher authors also 12 discussed the lack of consistency among the 13 various talcum powder studies; is that right?</p> <p>14 MS. O'DELL: Object to the 15 form.</p> <p>16 A. I'm sorry, could you repeat 17 that question?</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. Sure.</p> <p>20 You looked at the Bradford Hill 21 factors in formulating your opinion; is that 22 right?</p> <p>23 A. Yes.</p> <p>24 Q. One of the Bradford Hill</p>	<p>Page 107</p> <p>1 Q. Table 2 is a summary of 2 evidence for each of the Hill criteria of 3 causation as applied to perineal application 4 of talc and ovarian cancer. 5 Do you see that?</p> <p>6 A. Yes.</p> <p>7 Q. Under Consistency, they state 8 that 15 out of 30 studies reported positive 9 and significant associations; is that right?</p> <p>10 A. Yes.</p> <p>11 Q. 15 out of 30, that's 50%, 12 right?</p> <p>13 A. Yes.</p> <p>14 Q. 50% is no better than a coin 15 toss; is that right?</p> <p>16 MS. O'DELL: Object to the 17 form.</p> <p>18 A. Well, I would have to also 19 mention that the majority of those 30 studies 20 found positive associations. These are the 21 ones that showed positive associations that 22 rose to the level of statistical 23 significance.</p> <p>24 ///</p> <p>Page 109</p>

1 BY MR. ZELLERS: 2 Q. If an association is not 3 statistically significant, then it can be due 4 to chance; is that right? 5 A. But if it's due to chance over 6 and over and over again, and you keep getting 7 a positive association, that argues very 8 strongly against the chance as being the only 9 factor. 10 Q. Can you answer my question: A 11 lack of a statistically significant 12 association is consistent with or can be 13 consistent with no risk, correct? 14 MS. O'DELL: Objection to form, 15 asked and answered. 16 A. If you're referring to an 17 individual study, that might be the case; 18 however, when considering the Bradford Hill 19 criterion of consistency, you look at the 20 overall body of the literature and what it 21 tells you. 22 There's an obvious statistical 23 trend toward positive connection between 24 talcum powder perineal application and the	Page 110 1 studies that have shown a biological gradient 2 at -- especially in relation to some of the 3 subtypes of ovarian cancer. 4 BY MR. ZELLERS: 5 Q. And I'm going to ask you about 6 those questions, but right now I'm just 7 asking you about the Taher paper. 8 A. Well, I'm trying to just 9 completely answer your question. 10 Q. I'm asking you about the Taher 11 paper. You understand? 12 A. Yes. This is all from the 13 Taher paper that I read you. 14 Q. Section 3.3.1 talks about 15 evidence from human studies. That's on 16 page 20; is that right? 17 A. Yes. 18 Q. This section talks about 19 whether or not there is a consistent 20 dose-response found in those studies; is that 21 right? 22 MS. O'DELL: What sentence are 23 you pointing to? 24 MR. ZELLERS: I'm asking the
1 occurrence of ovarian cancer, and the more 2 evidence that mounts, the more strongly that 3 association is proven. 4 BY MR. ZELLERS: 5 Q. Would you say that 15 out of 30 6 means there are consistent results across 7 studies? 8 A. I think I've just explained to 9 you how I believe there are consistent 10 results across studies. 11 Q. The authors of the Taher paper 12 also conclude that they do not find a 13 consistent dose-response in the papers that 14 look at perineal application of talc and 15 ovarian cancer; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. Well, what they actually say is 19 that about half of the epidemiological 20 studies assess only one level of talc 21 exposure, ever versus never. So it's not 22 possible from those studies to establish a 23 biological gradient. 24 However, there are a number of	Page 111 1 doctor questions based upon his review 2 of the paper, Ms. O'Dell. 3 MS. O'DELL: Okay. Feel free 4 to review it, Doctor, if you need to. 5 THE WITNESS: I'm just taking a 6 look at this section. 7 BY MR. ZELLERS: 8 Q. And if it helps you, look on 9 page 21, lines 174 through 177. 10 (Document review.) 11 BY MR. ZELLERS: 12 Q. I only want to ask you about 13 two sentences. Are you ready for me to ask 14 you my question? 15 A. Just one moment, please. 16 Q. Sure. 17 (Document review.) 18 THE WITNESS: All right, I'm 19 ready for your question. 20 BY MR. ZELLERS: 21 Q. The Taher paper states that 22 many of the studies only reported on the 23 ovarian cancer risk assessing one exposure 24 category and that exposure response analyses

<p>1 were not done in all studies; is that right? 2 A. Yes. 3 Q. When conducted, findings from 4 trend analyses were not consistent; is that 5 correct? 6 MS. O'DELL: Object to the 7 form. 8 A. Yes. 9 BY MR. ZELLERS: 10 Q. All right. With respect -- I'm 11 done with that paper. 12 You discuss your opinion 13 number 1 on page 7 of your report; is that 14 right? 15 A. Yes. 16 Q. You first state on page 7 that 17 you believe talcum powder is immunogenic and 18 produces chronic inflammation in the tissues; 19 is that right? 20 A. Yes. 21 Q. You state that other components 22 in talcum powder, including mineral fibers, 23 asbestos, fibrous talc, carcinogenic metals 24 and other chemicals intensify the</p>	<p>Page 114</p> <p>1 inflammation in the tissues in which it 2 sequesters; is that right? 3 A. Yes. 4 Q. Assuming for the moment that 5 talc can reach the ovaries, is it your 6 opinion that talc produces chronic 7 inflammation in the ovaries and that this 8 somehow leads to ovarian cancer? 9 A. It is my opinion that talc 10 produces chronic inflammation in the 11 epithelial tissues of the ovaries and 12 surrounding epithelial tissues and leads to 13 both carcinogenesis initiation and promotion. 14 Q. There are no reports in the 15 literature of externally applied talc leading 16 to inflammation, granulomas, fibrosis or 17 adhesions anywhere along a woman's 18 reproductive tract, correct? 19 MS. O'DELL: Object to the 20 form, asked and answered. 21 A. Well, that's similar to the 22 question that you asked earlier, and although 23 I'm not aware of experimental reports that 24 specifically jive with that condition,</p>
<p>1 inflammatory response and stimulate cell 2 growth and proliferation; is that right? 3 A. Yes. 4 Q. Other than asbestos, what 5 mineral fibers in talc intensify the 6 inflammatory response? 7 A. Well, the endogenous fibrous 8 talc fibers also intensify the response. 9 Q. Other than asbestos and fibrous 10 talc fibers, what mineral fibers in talc do 11 you believe intensify the inflammatory 12 response? 13 A. I'm not really able to answer 14 that question because I don't have a specific 15 opinion about it. I'm not a geologist. 16 Q. Are the other chemicals that 17 you refer to in this section fragrance 18 chemicals? 19 A. Yes. 20 Q. Any others? 21 A. None that are intentionally 22 added. 23 Q. You claim, again on page 7, 24 that talcum powder produces chronic</p>	<p>Page 115</p> <p>1 certainly there are a lot of theoretical 2 reports that have been published. 3 For example, Dr. Ness' article 4 from '99 lays out the theory of inflammation 5 and relates that to talc exposure from 6 perineal application. 7 BY MR. ZELLERS: 8 Q. This is your colleague, 9 Dr. Ness; is that right? 10 A. Ness, and Coussens, when she 11 was at Pittsburgh. 12 Q. Dr. Ness, you showed her your 13 report and asked for her comments; is that 14 right? 15 A. I didn't show her the report. 16 Q. Well, you talked to her about 17 and showed her your conclusions and your 18 opinions; is that right? 19 A. No, I talked to her about the 20 paper. 21 Q. Her paper? 22 A. Yes. 23 Q. Did you share with her that you 24 were going to be an expert for the plaintiffs</p>

<p>1 in this litigation? 2 A. No, I didn't. 3 Q. Did she wonder or ask why it 4 was that you were researching or looking into 5 this issue? 6 A. She -- I think she may have, 7 yeah. 8 Q. And what did you tell her? 9 A. I told her I had been recently 10 asked to look into it. 11 Q. Did you tell her that you'd 12 been asked to look into it by counsel for 13 plaintiffs in the talc litigation? 14 A. No, I didn't. 15 Q. And that never came up; is that 16 right? 17 A. It didn't. 18 Q. And she never talked to you or 19 told you about her experience and her work as 20 counsel -- strike that, as an expert for 21 plaintiffs; is that your testimony? 22 A. Yes. It was a very brief 23 conversation. 24 Q. If up to 50% of all U.S. women</p>	<p>Page 118</p> <p>1 talc relating to that, and to my knowledge, 2 there are no experimental reports or case 3 reports that can document that at the current 4 time. 5 Q. Granulomas, fibrosis and 6 adhesions do not cause ovarian cancer, 7 correct? 8 MS. O'DELL: Object to the 9 form. 10 A. The inflammatory process that 11 is intimately connected with granuloma 12 formation may well be the same process that 13 results in mutation and promotion of ovarian 14 cancer. So I -- I could not agree completely 15 with your statement. 16 BY MR. ZELLERS: 17 Q. Is there a good scientific 18 basis today to opine that granulomas, 19 fibrosis or adhesions cause ovarian cancer? 20 MS. O'DELL: Object to the 21 form. 22 A. No, I don't think they cause 23 ovarian cancer. 24 ///</p> <p>Page 120</p>
<p>1 have used genital talc, shouldn't there be 2 studies which have shown inflammation, 3 granulomas, fibrosis or adhesions in a 4 woman's reproductive tract? 5 MS. O'DELL: Object to the 6 form. 7 A. Well, there are studies that 8 show those things. 9 BY MR. ZELLERS: 10 Q. Please, tell me the published 11 studies that demonstrate inflammation, 12 granulomas, fibrosis or adhesions in a 13 woman's reproductive tract from externally 14 applied talc? 15 A. Well, you're adding a new 16 condition now. 17 Q. I'm sorry if I didn't add that 18 before. 19 A. There are multiple studies that 20 show inflammation and other inflammatory 21 reactions in connection with the occurrence 22 of ovarian cancer. 23 The piece that you're now 24 asking for is the external application of</p>	<p>Page 119</p> <p>1 BY MR. ZELLERS: 2 Q. Would you agree that not all 3 inflammatory conditions lead to cancer? 4 A. Yes. 5 Q. It's true that all of us 6 experience inflammatory reactions of one sort 7 or another, including chronic conditions, 8 that do not lead to cancer, correct? 9 A. That's correct. Although there 10 is a strong relationship between inflammatory 11 processes and the occurrence of cancers, and 12 some of those inflammatory diseases that 13 you're referring to also have associations 14 with increased rates of cancers. 15 MR. ZELLERS: Move to strike as 16 nonresponsive. 17 BY MR. ZELLERS: 18 Q. Rheumatoid arthritis is an 19 inflammatory condition; is that right? 20 A. Yes, it is. 21 Q. Does it increase the risk of 22 ovarian cancer? 23 A. I think I -- it does -- it's 24 not associated with ovarian cancer, but I</p> <p>Page 121</p>

<p>1 think it may be associated with other 2 cancers. 3 Q. Does -- strike that. 4 Is psoriasis an inflammatory 5 condition? 6 A. Generally, it is. 7 Q. Is it associated with an 8 increased risk of ovarian cancer? 9 A. Not that I'm aware. 10 Q. In your report you state that 11 inflammation is a normal body process that 12 leads to the thwarting of infection and rapid 13 healing; is that right? 14 A. That's correct. 15 Q. If your inflammation theory is 16 correct, why doesn't inflammation generally, 17 such as in pelvic inflammatory disease, cause 18 ovarian cancer? 19 A. It may do so. 20 Q. You are opining under oath here 21 that pelvic inflammatory disease causes 22 ovarian cancer? 23 A. I think there are experts who 24 have concluded that.</p>	<p>Page 122</p> <p>1 A. This is a list that I've put 2 together of some of the studies I've 3 considered and how they relate to things I 4 might testify to today. 5 Q. Why did you not tell me about 6 your list that you brought with you today 7 before now? 8 A. Well, I'm telling you about it 9 now. 10 Q. My question is why did you not, 11 when I asked you what you brought to the 12 deposition today, not take the list out and 13 show us the list? 14 A. I didn't think of it. 15 Q. Okay. We'll mark your list as 16 Deposition Exhibit 15. 17 (Carson Deposition Exhibit 15 18 marked.) 19 BY MR. ZELLERS: 20 Q. These are a number of notes, 21 four pages of notes. Are these all your 22 notes? 23 A. Yes. 24 Q. First page has got a section of</p> <p>Page 124</p>
<p>1 Q. What study are you relying on 2 for that opinion or statement? 3 A. That's not part of the opinions 4 that I've been asked to consider in this -- 5 in this case. 6 Q. As you sit here, can you cite 7 me a publication or a study that finds that 8 pelvic inflammatory disease causes ovarian 9 cancer? 10 MS. O'DELL: Object to the 11 form. 12 A. Well, I have -- I have a list 13 of studies that relate inflammation to 14 ovarian cancer and other cancers. 15 BY MR. ZELLERS: 16 Q. Can you name me a study or a 17 publication? 18 A. Okay. I think I have my list 19 here. 20 Q. You brought other materials 21 with you? 22 A. I brought this list. 23 Q. All right. Well, what list are 24 you pulling out of your pocket?</p>	<p>Page 123</p> <p>1 articles on asbestos and ovarian cancer; is 2 that right? 3 A. Yes. 4 Q. It also has inflammation and 5 cancer and a number of studies; is that 6 right? 7 A. Yes. 8 Q. Second page has got cohort, 9 where you've listed out the four cohort 10 studies; is that right? 11 A. Yes. 12 Q. Beneath that are the 13 meta-analyses where you've listed those out 14 and made some notes on those, correct? 15 A. Yes. 16 Q. The back page of the second 17 page has got a listing of a number of the 18 case-control studies, correct? 19 A. Yes. Those are duplicated on 20 another page. 21 Q. The third page has got a 22 section on migration and studies that you're 23 looking at for that proposition, correct? 24 A. Correct.</p> <p>Page 125</p>

<p>1 Q. Underneath that, ovarian cancer 2 risk; is that right? 3 A. Yes. 4 Q. Underneath that, talc and other 5 cancer; is that right? 6 A. Yes. 7 Q. And then on the last page, 8 page 4, is a listing of the case-control 9 studies with the odds ratios and confidence 10 intervals; is that right? 11 A. For the most part, yes. 12 Q. All right. So looking now at 13 your list of studies that you have prepared, 14 which study demonstrates or supports the 15 proposition that pelvic inflammatory disease 16 causes ovarian cancer? 17 A. Looking through here, I don't 18 have that item specifically in my notes, but 19 I'm just using my notes to refresh my memory 20 about the individual research report. I 21 think the Coussens and Werb paper from 2010 22 talks about general mechanisms of 23 inflammation in relation to the occurrence of 24 ovarian cancer.</p>	<p>Page 126</p> <p>1 authors conclude that pelvic inflammatory 2 disease causes ovarian cancer? Do you 3 believe each of the authors in the studies 4 that you've identified, that their studies 5 stand for that proposition? 6 MS. O'DELL: Object to form, 7 asked and answered. 8 A. I think all of the studies that 9 I've identified for this question do allude 10 to that, yes. 11 BY MR. ZELLERS: 12 Q. That pelvic inflammatory 13 disease causes ovarian cancer, correct? 14 A. That it is a -- it's a factor, 15 yes. 16 Q. It's a cause. That's what they 17 state in those papers, right? 18 MS. O'DELL: Object to the 19 form. 20 BY MR. ZELLERS: 21 Q. That's your testimony? 22 MS. O'DELL: Excuse me, 23 misstates his testimony. Object to 24 the form.</p> <p>Page 128</p>
<p>1 And there's the Ness and 2 Cottreau paper from '99. 3 Okada has discussed it in the 4 2007 paper. And there's a paper from 2001 5 which is Balkwill and Mantovani which 6 discusses the relationship between talc and 7 ovarian cancer and also discusses the 8 relationship to other sources of 9 inflammation. 10 Q. Each of those papers that 11 you've identified you believe state that 12 pelvic inflammatory disease is a cause of 13 ovarian cancer, correct? 14 MS. O'DELL: Object to the 15 form. 16 A. Well, I don't think they state 17 that in so many words, but if you read the 18 paper and you understand that -- what pelvic 19 inflammatory disease is and its relationship 20 to inflammatory processes in general, yes, 21 that's what they're saying. 22 BY MR. ZELLERS: 23 Q. Doctor, my question to you was: 24 Are you aware of any papers in which the</p>	<p>Page 127</p> <p>1 A. I would say it's a factor and 2 leave it at that. 3 BY MR. ZELLERS: 4 Q. All right. Are you familiar 5 with pleurodesis? 6 A. I am. 7 Q. Does a pleurodesis cause 8 cancer? 9 A. It is not known to, although it 10 might. 11 Q. Are you familiar with the 12 study, 1979, A survey of the long-term 13 effects of talc and kaolin pleurodesis? 14 A. Can tell me who the author of 15 that was? 16 Q. Sure. The author is -- this is 17 from the Research Committee of the British 18 Thoracic Association. The members of the 19 subcommittee were Chappell, Johnson, Charles, 20 Wagner, Seal, Berry and Nicholson. 21 Are you familiar with that 22 paper? 23 A. I'm not familiar with the 24 paper. I may have looked at it in the past.</p> <p>Page 129</p>

<p>1 Q. We'll take a look at it. We'll 2 mark it as Deposition Exhibit 16. 3 (Carson Deposition Exhibit 16 4 marked.)</p> <p>5 A. Thank you. 6 MS. O'DELL: Thank you.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. This was a study that looked at 9 the association between pleurodesis and lung 10 cancer; is that right?</p> <p>11 A. Yes.</p> <p>12 Q. It's a study that you cite on 13 page 1 of your literature list; is that 14 right?</p> <p>15 A. Okay. Yes.</p> <p>16 Q. So you've read it; is that 17 right?</p> <p>18 A. I have.</p> <p>19 Q. You've considered it; is that 20 right?</p> <p>21 A. Yes.</p> <p>22 Q. They looked at 210 patients 23 that underwent a pleurodesis with talc or 24 kaolin 14 to 40 years before; is that right?</p>	<p>Page 130</p> <p>1 form. 2 A. I think that was the hypothesis 3 of those research reports.</p> <p>4 BY MR. ZELLERS:</p> <p>5 Q. And, in fact, the NSAID studies 6 do not find a consistent causal reduction in 7 the risk of ovarian cancer; is that right?</p> <p>8 A. I think that's correct.</p> <p>9 Q. In your report you also state 10 that studies show that use of cornstarch 11 instead of talcum powder reduces the risk of 12 ovarian cancer; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. If inflammation causes cancer, 15 why would cornstarch be a superior 16 alternative to talc?</p> <p>17 A. The reason is that cornstarch, 18 being a biological product, is much -- it 19 does have a rapid clearance from the body, 20 even when sequestered, in comparison with a 21 mineral substance like talc.</p> <p>22 Q. Well, in fact, cornstarch 23 causes or increases the risk of inflammation, 24 granulomas, fibrosis and adhesions, correct?</p>
<p>1 A. That's correct.</p> <p>2 Q. And they found that there was 3 no increased incidence of lung cancer and no 4 cases of mesothelioma; is that right?</p> <p>5 A. That's correct.</p> <p>6 Q. Why don't -- well, strike that. 7 You're aware of the studies 8 that have looked at antiinflammatory drugs 9 and aspirin use with respect to whether or 10 not they're associated with -- let me 11 withdraw that.</p> <p>12 Are you familiar with the NSAID 13 and aspirin use studies relating to the 14 incidence of ovarian cancer in chronic users?</p> <p>15 A. I'm familiar with some of 16 those, yes.</p> <p>17 Q. If your theory is correct that 18 inflammation causes ovarian cancer, then you 19 would expect that the studies of NSAIDs and 20 aspirin use, antiinflammatory drugs that 21 reduce inflammation, would consistently 22 reduce the incidence of ovarian cancer, 23 correct?</p> <p>24 MS. O'DELL: Object to the</p>	<p>Page 131</p> <p>1 A. It may, yes.</p> <p>2 Q. Just like you claim talcum 3 powder increases the risk of inflammation, 4 granulomas, fibrosis and adhesions; is that 5 right?</p> <p>6 MS. O'DELL: Object to the 7 form.</p> <p>8 A. I think you are -- you're 9 parsing terms here. That list of things were 10 your words. I was agreeing with the 11 relationship between talc and inflammation in 12 ovarian epithelial tissue and the production 13 or granulomas. I did not discuss the 14 relationship between talc and adhesions or 15 fibrosis. There was one other thing on your 16 list.</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. Well, in fact, the FDA has 19 banned the use of cornstarch as a powder for 20 lubricating surgical gloves; is that right?</p> <p>21 A. It has, but that's not the 22 reason.</p> <p>23 Q. Well, the reason that they 24 banned the use of cornstarch is because it</p>

1 presented an unreasonable and substantial 2 risk of illness or injury and that that risk 3 cannot be corrected or eliminated by 4 labeling, correct? 5 A. I don't know the specific 6 language. It looks like you're reading from 7 a Federal Register document. 8 The main reason that cornstarch 9 has been banned as a lubricant in gloves is 10 because of the potential for transmission of 11 primarily respiratory problems through 12 inhalation, mostly by co-workers, not by 13 patients. 14 Q. You do agree that cornstarch 15 has been banned by the FDA for use in 16 surgical gloves; is that right? 17 A. All powdered gloves have been 18 essentially banned from hospitals and 19 operating rooms now. 20 Q. You also talk about 21 inflammation and oxidative stress; is that 22 right? 23 A. Yes. 24 Q. Does the presence of oxidative	Page 134 1 Q. Why do you have to have a 2 special definition of "oxidative stress"? 3 I'm asking simply: Is there a publication or 4 a study which documents that oxidative stress 5 is involved in the development of ovarian 6 cancer? 7 MS. O'DELL: Object to the 8 form. 9 A. Sure. 10 BY MR. ZELLERS: 11 Q. And what paper are you going to 12 point me to? 13 A. Well, I'll point you to the 14 Ness paper to begin with, because it was one 15 of the earlier papers that related oxidative 16 stress from talc to the occurrence of ovarian 17 cancer. But the relationship between 18 inflammation, which essentially is the source 19 of the oxidative stress, and cancer goes all 20 the way back into the 19th Century in terms 21 of its proposal as a rationale. 22 Q. Is oxidative stress a variation 23 of inflammation as you're using that term 24 relating to a potential cause of ovarian	Page 136 1 stress in a tissue indicate that cancer will 2 develop in that tissue? 3 A. No. 4 Q. If exposure to a substance 5 causes oxidative stress in certain tissue, 6 does that mean exposure of all other tissues 7 to that substance will cause oxidative stress 8 in those tissues? 9 A. Not necessarily. 10 Q. Does the body have protective 11 mechanisms that can limit tissue damage from 12 oxidative stress? 13 A. Yes. 14 Q. Do all substances that cause 15 oxidative stress also cause cancer? 16 A. I'm not sure the answer to that 17 question is known. 18 Q. Are there any studies or 19 publications that indicate that oxidative 20 stress is involved in the development of 21 ovarian cancer? 22 A. If I can define the term 23 "oxidative stress," I could give you an 24 answer to that, that question.	Page 137 1 cancer? 2 A. It's a component of 3 inflammation. 4 Q. As a toxicologist, how would 5 you define fibrous talc? 6 A. Fibrous talc is a form of talc 7 that is conformed into elongated structures 8 that have an aspect ratio of length greater 9 than width that is different from the 10 majority of talc which is the platy form. 11 Q. Do you consider yourself to be 12 an expert on fibrous talc? 13 A. No, I don't. 14 Q. Do you consider yourself to be 15 an expert on oxidative stress? 16 A. I have dealt a lot with issues 17 of oxidative stress and health effects 18 resulting from it. 19 Q. Do you consider yourself to be 20 an expert in oxidative stress? 21 MS. O'DELL: Objection, asked 22 and answered. 23 A. I'm not a specific expert in 24 oxidative stress, but I can -- I can opine
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<p>1 regarding my professional understanding and 2 training.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. You've never been involved in 5 terms of any research or publication on the 6 subject of oxidative stress and any 7 association with ovarian cancer, correct?</p> <p>8 A. Not in terms of ovarian cancer, 9 no.</p> <p>10 Q. You have not been involved in 11 any research or publication relating to the 12 subject of inflammation and its association 13 with ovarian cancer, correct?</p> <p>14 A. No. All right. Yes, correct.</p> <p>15 Q. Yes, it is correct? Okay.</p> <p>16 You claim that the presence of 17 asbestos and fibrous talc further intensifies 18 the carcinogenic effect of talc; is that 19 right?</p> <p>20 A. Yes.</p> <p>21 Q. Is that statement different 22 from the statement directly above where you 23 allege that asbestos and mineral fibers 24 intensify the inflammatory response and</p>	<p>Page 138</p> <p>1 reports, the epidemiology first, is looking 2 at the relationship between perineal use of 3 dusting powders, talcum powders and ovarian 4 cancer.</p> <p>5 Although there have been 6 efforts in some of those studies to 7 characterize the proportion or the 8 ingredients that would be either asbestos or 9 fibers, that's not done in all cases, and 10 it's not ruled out in any cases.</p> <p>11 The -- also, the research 12 studies that have been performed, the 13 testing, for example, of the products 14 themselves are replete with reports of 15 components of these powders that are fibrous 16 in nature.</p> <p>17 MR. ZELLERS: Move to strike as 18 nonresponsive.</p> <p>19 BY MR. ZELLERS:</p> <p>20 Q. Do you believe that all talcum 21 powder products that are on the market 22 contain asbestos?</p> <p>23 MS. O'DELL: Object to the 24 form.</p>
<p>1 stimulate the cell growth and proliferation?</p> <p>2 A. It's not different, no.</p> <p>3 Q. Are your opinions dependent on 4 talc containing carcinogenic asbestos and/or 5 fibrous talc?</p> <p>6 A. No.</p> <p>7 Q. Do you believe that talcum 8 powder without asbestos causes ovarian 9 cancer?</p> <p>10 A. I believe talcum powder causes 11 ovarian cancer. I have not seen any research 12 done on talcum powder that has been shown not 13 to contain asbestos.</p> <p>14 Q. Your assumption that you have 15 made in formulating your opinions here is 16 that talcum powder contains asbestos; is that 17 right?</p> <p>18 A. No.</p> <p>19 Q. What assumption have you made 20 as to whether or not talcum powder contains 21 either asbestos or fibrous talc?</p> <p>22 MS. O'DELL: Object to the 23 form.</p> <p>24 A. Looking at the research</p>	<p>Page 139</p> <p>1 A. I don't know.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. Does it matter to your opinion 4 as to whether or not the talcum powder 5 products, and particularly the talcum powder 6 products involved in this case, contain 7 asbestos?</p> <p>8 A. I wouldn't have a way to be 9 able to answer that yes or no.</p> <p>10 Q. Do you -- strike that.</p> <p>11 Have you reached a conclusion 12 as to whether or not the talcum powder 13 products involved in this case contain 14 fibrous talc?</p> <p>15 A. I think that most of them do.</p> <p>16 Q. Does all of the talcum powder 17 contain fibrous talc or just some of it?</p> <p>18 A. Certainly a lot of it does.</p> <p>19 Q. The basis for your conclusion 20 that the talcum powder at issue in this case 21 contains fibrous talc is the testing reports 22 that plaintiffs' attorneys gave you?</p> <p>23 MS. O'DELL: Object to the 24 form.</p>

1 A. Yes. Also Longo's publications 2 and reports. 3 BY MR. ZELLERS: 4 Q. You have reviewed the Longo 5 reports; is that right? 6 A. Yes. 7 Q. Have you ever met with him? 8 A. No. 9 Q. Do you know his qualifications? 10 A. I looked at his qualifications 11 at one point, but I don't recall exactly what 12 it is at this stage. 13 Q. Ever hear of him before this 14 lawsuit, your getting involved in the talc 15 litigation back in October of 2018? 16 A. No. 17 Q. Have you reviewed any of 18 Longo's testing where he did not find 19 asbestos? 20 A. I -- the only thing I've 21 reviewed are what's present in those reports 22 that I cited. 23 Q. Were you provided by counsel 24 for plaintiffs with any testing reports from	Page 142	1 MS. O'DELL: Object to the 2 form. 3 A. That wasn't my charge. I defer 4 to the other experts in this case. 5 BY MR. ZELLERS: 6 Q. Do you have an opinion on what 7 type of asbestos you believe is in the talcum 8 powder products at issue in this case? 9 A. Well, there have been various 10 types shown, but I think for the most part 11 it's tremolite and anthophyllite. 12 Q. Are you familiar with 13 crocidolite? 14 A. Yes. 15 Q. Is crocidolite found in talcum 16 powder or baby powder? 17 A. It's not commonly found in it. 18 Q. You believe that the 19 asbestos -- types of asbestos that may be in 20 the talcum powder at issue in this case is 21 tremolite and acidolite [sic]? 22 MS. O'DELL: Objection. 23 A. Anthophyllite. There are 24 others found, but you asked for most common.
1 Longo where he did not find asbestos? 2 A. There are some of those listed 3 in his reports. 4 Q. Have you reviewed the FDA's 5 testing of talcum powder products? 6 A. The FDA didn't really do much 7 testing of talcum powder products. 8 Q. Have you reviewed the FDA's 9 testing of talcum powder products? 10 MS. O'DELL: Objection, vague. 11 A. The only FDA testing that I 12 looked at was the -- I have it referenced in 13 my list, but the FDA, based on a 14 recommendation, requested samples from 15 various companies, I think nine different 16 sources of talc. They received four and 17 tested those. And based on their test method 18 determined that there was not a -- not 19 evidence of a significant hazard. 20 BY MR. ZELLERS: 21 Q. Have you made any effort to 22 quantify the amount of any alleged 23 contaminant in the Johnson & Johnson Consumer 24 talcum powder?	Page 143	1 BY MR. ZELLERS: 2 Q. Most common you believe are 3 tremolite and anthophyllite? 4 A. Anthophyllite. 5 Q. Anthophyllite. Those two; is 6 that right? 7 A. Yes. 8 Q. What types of asbestos are 9 associated with ovarian cancer? 10 A. Well, I'll go back to my list 11 again. Crocidolite is associated with 12 ovarian cancer in the Acheson report from 13 1982, which was from female gas mask 14 manufacturers in England who made gas masks 15 during the period of the Second World War, 16 and crocidolite is associated with that with 17 a fairly high relative risk of 2.96. 18 Chrysotile asbestos had also a positive 19 relative risk of 1.74. 20 There was a study of factory 21 workers and pipe liggers in east London, 22 which is the Berry report from 2000, that 23 showed a relative risk of 2.53, and those 24 workers were exposed to primarily asbestos

<p>1 cement products and plasters, so the --</p> <p>2 Q. What type of asbestos, if you</p> <p>3 know?</p> <p>4 A. That would have been primarily</p> <p>5 amphibole asbestos types, which would include</p> <p>6 crocidolite and tremolite and anthophyllite,</p> <p>7 amosite is in that category.</p> <p>8 Bertolotti in 2008 published a</p> <p>9 report -- actually, there were several</p> <p>10 reports that resulted from the Eternit</p> <p>11 factory studies in Casale Monferrato in</p> <p>12 Italy, which was a plant that manufactured</p> <p>13 cement sheet and corrugated tubing, and there</p> <p>14 were a number of studies that showed elevated</p> <p>15 relative risks in persons exposed to asbestos</p> <p>16 in that work, and that would also have been</p> <p>17 amphibole asbestos types.</p> <p>18 Q. The studies that you've recited</p> <p>19 for us, those are all occupational studies;</p> <p>20 is that right?</p> <p>21 A. Yes. I've got a lot more.</p> <p>22 Q. Well, and it's on your list,</p> <p>23 which we marked as Exhibit 15; is that right?</p> <p>24 A. That's correct.</p>	<p>1 But based on my current</p> <p>2 understanding, I don't believe they've ever</p> <p>3 been totally successful in doing so.</p> <p>4 So in answer to your question,</p> <p>5 which I think was, was there ever a point in</p> <p>6 time where you believe the talcum powder</p> <p>7 products involved in this case were not</p> <p>8 contaminated with asbestos, no.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. You cite in your report,</p> <p>11 page 5, to two exhibits to the depositions of</p> <p>12 John Hopkins and Julie Pier in support of</p> <p>13 your opinion that talcum powder products</p> <p>14 contain asbestos; is that right?</p> <p>15 A. That's correct.</p> <p>16 Q. Looking at page 5, footnote 1,</p> <p>17 you cite to Exhibit Hopkins-28 in the Hopkins</p> <p>18 deposition and Exhibit Pier-47 in the Pier</p> <p>19 deposition; is that right?</p> <p>20 A. That's correct.</p> <p>21 Q. Are you aware that those</p> <p>22 exhibits were created by plaintiffs' counsel?</p> <p>23 MS. O'DELL: Objection to form.</p> <p>24 A. I didn't -- I -- I don't know</p>
<p>1 Q. All right. Those studies did</p> <p>2 not involve the perineal application of</p> <p>3 talcum powder products; is that right?</p> <p>4 MS. O'DELL: Object to the</p> <p>5 form.</p> <p>6 A. It was not a factor in the</p> <p>7 study.</p> <p>8 BY MR. ZELLERS:</p> <p>9 Q. Crocidolite and chrysotile</p> <p>10 asbestos has generally not been found in</p> <p>11 talcum powder products, correct?</p> <p>12 A. In general, that's the case.</p> <p>13 Q. Was there ever a point in time</p> <p>14 where you believe that the talcum powder</p> <p>15 products involved in this case were not</p> <p>16 contaminated with asbestos?</p> <p>17 MS. O'DELL: Objection to form,</p> <p>18 vague as to time.</p> <p>19 A. My understanding is that Imerys</p> <p>20 and their predecessors and Johnson & Johnson</p> <p>21 made significant efforts to reduce components</p> <p>22 of asbestos in their talc products over a</p> <p>23 number of years and made step-wise progress</p> <p>24 in doing that.</p>	<p>1 that and doesn't matter to me.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. Do you know where the data in</p> <p>4 those exhibits come from?</p> <p>5 A. Well, they come from the two</p> <p>6 persons who are testifying who have produced</p> <p>7 them from their -- mostly from their business</p> <p>8 records.</p> <p>9 Q. Okay. So you believe that</p> <p>10 Exhibit Hopkins-28 to the Hopkins deposition</p> <p>11 and Exhibit Pier-47 to the Pier deposition</p> <p>12 come from the business records of the</p> <p>13 Johnson & Johnson Company and Imerys?</p> <p>14 A. From the most part, there was</p> <p>15 a -- there was a table that was constructed</p> <p>16 during the deposition which was sort of a</p> <p>17 piece of summary information. I don't know</p> <p>18 if it's an exhibit to the deposition or if</p> <p>19 it's something separate from that, but it</p> <p>20 would not have been from business records,</p> <p>21 but occurred at the deposition itself.</p> <p>22 MS. O'DELL: Excuse me,</p> <p>23 Dr. Carson, would you like to see a</p> <p>24 copy of exhibit -- of the Hopkins</p>

<p>1 Exhibit Hopkins-28 and Pier 2 Exhibit Pier-47 in answering these 3 questions?</p> <p>4 THE WITNESS: If that's easy to 5 do, yes.</p> <p>6 MS. O'DELL: It's very easy to 7 do. This is a copy of 8 Exhibit Hopkins-28 of the Hopkins 9 deposition and Exhibit Pier-47 of the 10 Pier deposition.</p> <p>11 THE WITNESS: Okay.</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. Dr. Carson?</p> <p>14 A. Yes, sir.</p> <p>15 Q. Did you make any effort to 16 investigate the alternative explanations for 17 the data that's contained in those two 18 exhibits, Exhibit Hopkins-28 and 19 Exhibit Pier-47?</p> <p>20 A. Alternative explanations, I'm 21 not sure what you mean by that.</p> <p>22 Q. If the Johnson & Johnson 23 company -- companies' scientists and Imerys' 24 scientists opined that those tests don't</p>	<p>Page 150</p> <p>1 exhibits you're looking at, 2 Exhibit Hopkins-28 and Exhibit Pier-47, were 3 included in talcum powder product sold by J&J 4 Consumer Products?</p> <p>5 MS. O'DELL: Objection to the 6 form, asked and answered.</p> <p>7 A. No, I don't.</p> <p>8 BY MR. ZELLERS:</p> <p>9 Q. Have you confirmed -- strike 10 that.</p> <p>11 What amount of asbestos 12 exposure is associated with ovarian cancer?</p> <p>13 A. Any.</p> <p>14 Q. Your testimony under oath is 15 that any asbestos exposure is associated with 16 ovarian cancer?</p> <p>17 A. Any asbestos exposure and any 18 perineal application of talcum powder is 19 associated with an increased risk for ovarian 20 cancer.</p> <p>21 Q. The amount of asbestos 22 contained -- or allegedly contained within 23 the baby powder is of no consequence, 24 correct?</p>
<p>1 actually show asbestos, you have no expertise 2 to dispute that, do you?</p> <p>3 MS. O'DELL: Object to the 4 form.</p> <p>5 A. No, I don't have any personal 6 expertise to dispute that.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. Do you know whether or not any 9 of the talc product that is identified on 10 Exhibit Hopkins-28 and Exhibit Pier-47 was 11 actually used in the talcum powder products 12 that were sold by the Johnson & Johnson 13 Consumer Products company?</p> <p>14 MS. O'DELL: Objection to form.</p> <p>15 A. I -- it's my understanding that 16 some of these results, at least -- in 17 particular from the Pier deposition, that 18 some of these results were from testing that 19 was done on material that had already been 20 shipped and probably incorporated into 21 products.</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q. Do you know whether or not any 24 of the talc that is referred to on the two</p>	<p>Page 151</p> <p>1 MS. O'DELL: Object to the 2 form.</p> <p>3 A. No, it is of consequence, and a 4 larger dose would be a greater hazard. But 5 that doesn't mean that a low dose is not a 6 hazard.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. My question is: Do you know 9 the amount of alleged asbestos exposure 10 that's associated with ovarian cancer?</p> <p>11 A. No.</p> <p>12 Q. Do you know the type of ovarian 13 cancer that asbestos is associated with?</p> <p>14 MS. O'DELL: Object to the 15 form.</p> <p>16 A. It's associated mostly with the 17 collection of epithelial ovarian cancers --</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. What --</p> <p>20 A. -- primarily serous.</p> <p>21 Q. Does the type of ovarian cancer 22 vary based upon the type of asbestos?</p> <p>23 A. Not that I'm aware of.</p> <p>24 Q. You believe that all types of</p>

<p>1 asbestos can produce all types of ovarian 2 cancer; is that correct?</p> <p>3 MS. O'DELL: Object to the 4 form.</p> <p>5 A. I suspect that some forms of 6 asbestos are much more carcinogenic than 7 others, and that would be true for the 8 ovaries as well as other structures in the 9 body.</p> <p>10 BY MR. ZELLERS:</p> <p>11 Q. Are you able to distinguish for 12 us what types of asbestos cause or are 13 associated with what types of ovarian cancer?</p> <p>14 A. I don't think I'm able to make 15 those distinctions, but the studies I just 16 read to you regarding the relationship 17 between asbestos and ovarian cancer and the 18 others on my list do indicate that there are, 19 for example, in the Acheson study, there 20 were -- there was a positive relationship 21 between both crocidolite and chrysotile 22 exposure, and the crocidolite had a greater 23 effect on ovarian cancer than the chrysotile, 24 but did not have -- they were both positive.</p>	<p>Page 154</p> <p>1 A. That's background information 2 and my personal knowledge.</p> <p>3 Q. You are not going to give an 4 opinion on mines, mining or milling in this 5 case; is that right?</p> <p>6 A. Depends on the questions.</p> <p>7 Q. Well, as you sit here today, do 8 you intend to give opinions on talc mining, 9 mines or milling?</p> <p>10 A. It wasn't my intention, but if 11 asked a question that I think I'm qualified 12 to answer, I'll try to do it.</p> <p>13 Q. Are you an expert on talc 14 mining and milling?</p> <p>15 A. I'm an expert on industrial 16 processes in general, and if -- I have some 17 personal understanding of talc mining and 18 milling.</p> <p>19 Q. Have you been personally 20 involved in talc mining and milling?</p> <p>21 A. I haven't been involved in it; 22 I've observed it.</p> <p>23 Q. Do you consider yourself to be 24 an expert in talc mining and milling?</p>
<p>1 Q. What type of ovarian cancer?</p> <p>2 A. That, I don't know at the 3 moment. I could look in the paper and see if 4 it's listed.</p> <p>5 Q. There are a number of different 6 types of ovarian cancer; is that right?</p> <p>7 A. That's correct.</p> <p>8 Q. You are not familiar with J&J 9 Consumer Products' procedures for milling or 10 mining; is that right?</p> <p>11 MS. O'DELL: Object to the 12 form.</p> <p>13 A. I'm familiar with some of their 14 procedures, yes.</p> <p>15 BY MR. ZELLERS:</p> <p>16 Q. Are you familiar with their 17 testing of source mines?</p> <p>18 A. To some extent.</p> <p>19 MS. O'DELL: Object to the 20 form.</p> <p>21 BY MR. ZELLERS:</p> <p>22 Q. Is it set forth in your report, 23 or is that just background information that 24 you looked at?</p>	<p>Page 155</p> <p>1 MS. O'DELL: Objection, asked 2 and answered.</p> <p>3 A. No, I don't.</p> <p>4 BY MR. ZELLERS:</p> <p>5 Q. You have no independent basis 6 to say that cosmetic talc contains asbestos, 7 correct?</p> <p>8 MS. O'DELL: Object to the 9 form.</p> <p>10 A. What do you mean by independent 11 basis?</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. You have not done any testing 14 of talcum powder to determine whether it 15 contains asbestos or not; is that right?</p> <p>16 A. No. All of my understanding is 17 based on other sources.</p> <p>18 Q. And those other sources would 19 be, in part, the testing that was done by 20 Longo; is that right?</p> <p>21 A. Yes, as well as the testing 22 that's reported in the -- in the literature 23 section as the Imerys test results and 24 quality control materials.</p>

1 Q. You're looking now back at the 2 Pier Exhibit Pier-47 and the Hopkins 3 Exhibit Hopkins-28; is that right? 4 A. I was actually referring to the 5 Imerys documents that are referenced toward 6 the end of the literature exhibit to my 7 report, but certainly the Exhibit Pier-47 8 would be included there. 9 Q. You have no independent basis 10 to say that cosmetic talcum powder contains 11 fibrous talc, correct? 12 MS. O'DELL: Object to the 13 form. 14 A. I have no independent basis, 15 no. 16 BY MR. ZELLERS: 17 Q. You're familiar with the 18 limitations of the research on a potential 19 link between asbestos and ovarian cancer; is 20 that right? 21 MS. O'DELL: Object to the 22 form. 23 A. I'm familiar with some research 24 limitations in that question, yes.	Page 158	Page 160
1 BY MR. ZELLERS: 2 Q. You agree that research on the 3 potential relationship between asbestos and 4 ovarian cancer has only considered a small 5 number of cases; is that right? 6 MS. O'DELL: Object to the 7 form. 8 A. Well, it's considered thousands 9 of cases. Certainly in terms of the number 10 of women who have experienced ovarian cancer 11 it's small, but it's significant, and that's 12 where we get research from that answers 13 important questions. 14 BY MR. ZELLERS: 15 Q. Are you familiar with the Reid 16 paper, 2011? 17 A. Yes, but it's been a while 18 since I've looked at it. 19 Q. Well, I'll hand you a copy. 20 We'll mark it as Exhibit 17. 21 (Carson Deposition Exhibit 17 22 marked.) 23 MS. O'DELL: Thank you. 24 ///	Page 159	Page 161

<p>1 similar under light microscopy, and they're 2 often difficult to distinguish, even by a 3 pathologist, unless special tests are used. 4 Often these cases occur in 5 places where they don't have the access to 6 special test equipment that can definitively 7 distinguish, and so they are classified and 8 we move on.</p> <p>9 Q. Another limitation of any 10 studies in this area relate to the inability 11 to account for nonoccupational risk factors 12 for ovarian cancer other than age; is that 13 right?</p> <p>14 MS. O'DELL: Object to the 15 form.</p> <p>16 A. Are you reading also from this 17 paper or --</p> <p>18 BY MR. ZELLERS:</p> <p>19 Q. I was looking now at the 20 Camargo paper. Are you familiar with the 21 Camargo paper?</p> <p>22 A. If you have a copy of that, I'd 23 like to look at it, if I'm going to answer 24 questions about it.</p>	<p>Page 162</p> <p>1 take a minute to refresh yourself on 2 the page --</p> <p>3 MR. ZELLERS: I'm looking under 4 Discussion.</p> <p>5 MS. O'DELL: -- please feel 6 free to do that.</p> <p>7 Excuse me, sir, I was talking. 8 If you need to review the paper, 9 Dr. Carson, please feel free to do 10 that.</p> <p>11 MR. ZELLERS: This doctor has 12 given 35 depositions. He is perfectly 13 capable of handling himself. He does 14 not need your advice as we go along.</p> <p>15 MS. O'DELL: Nor do I, Michael. 16 So I'm going to deal with this witness 17 in the way I choose, which is 18 perfectly appropriate. If Dr. Carson 19 needs to review the paper, he's going 20 to review the paper. You may ask him 21 questions, he'll be happy to respond.</p> <p>22 MR. ZELLERS: Your job is not 23 to coach the witness; your job is to 24 make objections as to form or</p> <p>Page 164</p>
<p>1 Q. All right. This is a paper in 2 2011. We'll mark it as Exhibit 18. 3 (Carson Deposition Exhibit 18 4 marked.)</p> <p>5 BY MR. ZELLERS:</p> <p>6 Q. Here the authors also looked at 7 the issue of occupational exposure to 8 asbestos and ovarian cancer; is that right?</p> <p>9 A. Yes.</p> <p>10 Q. If you turn to page 216 -- I'm 11 sorry, 1216, second-to-last paragraph before 12 the conclusion: A further limitation of our 13 analysis was its inability to account for 14 nonoccupational risk factors for ovarian 15 cancer other than age.</p> <p>16 Is that identified by the 17 authors as a limitation?</p> <p>18 A. Yes, it is.</p> <p>19 Q. Under -- if you go a page back, 20 1215, under Discussion, in the second 21 paragraph, the authors talk about other 22 studies that have been done in this area, 23 including Edelman; is that right?</p> <p>24 MS. O'DELL: If you need to</p>	<p>Page 163</p> <p>1 foundation, not to make speaking 2 objections and coaching of the 3 witness.</p> <p>4 MS. O'DELL: If you have a 5 question, I'm sure Dr. Carson would be 6 happy to address it.</p> <p>7 MR. ZELLERS: I've asked him 8 the question.</p> <p>9 MS. O'DELL: Would you mind 10 repeating the question, please?</p> <p>11 MR. ZELLERS: Sure.</p> <p>12 THE WITNESS: I don't remember 13 the question.</p> <p>14 MR. ZELLERS: Okay. I'll be 15 happy to repeat it.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Dr. Carson, you've looked at 18 this Camargo paper; is that right?</p> <p>19 A. Yes.</p> <p>20 Q. In their discussion, they talk 21 about other research, including research done 22 by Edelman; is that right?</p> <p>23 A. Are you at the top of the 24 middle column on --</p> <p>Page 165</p>

1 Q. I'm looking under Discussion. 2 A. Yes. 3 Q. The first -- well, the second 4 paragraph. 5 A. Second paragraph, yes. 6 Q. The magnitude of the pooled 7 estimate is similar to that reported by 8 Edelman; is that right? 9 A. Correct. Correct. 10 Q. Then they state: They 11 concluded, however, that despite the positive 12 and significant association, there was 13 insufficient information to infer that 14 ovarian cancers were caused by occupational 15 exposure to asbestos because of concerns 16 about tumor misclassification, inappropriate 17 comparison populations and the failure to 18 take into account for known risk factors. 19 Did I read that -- 20 A. You read that correctly. 21 Q. All right. Are women who use 22 talc perineally at greater risk of 23 mesothelioma? 24 A. I can't say that they are, but	Page 166 1 BY MR. ZELLERS: 2 Q. -- if your theory is correct? 3 MS. O'DELL: Object to the 4 form. 5 A. There may have been higher 6 rates of ovarian cancers, but you have to 7 also understand that the latency period for 8 ovarian cancer is pretty long. It's greater 9 than 20 years, often as long as 40 years. 10 And so we're still dealing with cancers that 11 may have started back in the '70s. 12 BY MR. ZELLERS: 13 Q. Would you agree that exposure 14 to asbestos through a perineal cosmetic talc 15 use is different from the heavy occupational 16 exposure that has primarily been researched? 17 MS. O'DELL: Objection to form. 18 A. Yes. I agree with that. 19 BY MR. ZELLERS: 20 Q. Are you an expert and 21 knowledgeable about cleavage fragments? 22 A. I'm not. 23 Q. If I went through a series of 24 questions and asked you to differentiate
Page 167 1 they may be. 2 Q. Wouldn't you expect to find 3 higher rates of other cancers in women using 4 talc like mesothelioma if they are being 5 exposed to substantial amounts of asbestos? 6 A. Well, we may -- we may be 7 seeing some mesotheliomas that are 8 misclassified as ovarian cancers, or we may 9 be seeing mesotheliomas and not relating talc 10 application as a pertinent contributor to 11 that case. 12 Q. You told us earlier that you 13 thought that there may have been more 14 asbestos in talcum powders in the 1970s; is 15 that right? 16 MS. O'DELL: Objection to form. 17 A. I think I said there have been 18 step-wise improvements, and I -- but I agree 19 with that statement. 20 BY MR. ZELLERS: 21 Q. Shouldn't we have seen higher 22 rates of ovarian cancer in the earlier 23 studies -- 24 MS. O'DELL: Object --	Page 169 1 between cleavage fragments and asbestos 2 fibers, you would defer that to other 3 experts? 4 A. I would. 5 Q. You also claim that the 6 presence of carcinogenic metals, including 7 chromium, cobalt and nickel in talc, adds to 8 its carcinogenicity; is that right? 9 A. That is right. 10 Q. Do you have an opinion or 11 knowledge as to the amounts of chromium, 12 cobalt and nickel, if any, in talc? 13 A. Those metal elements are 14 included as -- usually as impurities or in 15 very small quantities in some deposits and 16 are present in small amounts. 17 Q. Do you have any idea how much 18 of these metals, if any, reaches a woman's 19 ovaries each time they use talc? 20 A. I can't tell you how much, but 21 I can tell you that some does, and it is -- 22 it remains in the talc until long after it 23 reaches the ovaries. 24 Q. Chromium, cobalt and nickel are

1 natural elements; is that right?
2 A. Yes.
3 Q. They are naturally in our
4 bodies; is that right?
5 A. That's correct.
6 Q. They are present in food,
7 drinking water, bottled water, vitamins; is
8 that right?
9 A. To some extent.
10 Q. Do you have any evidence that
11 the blood or tissue levels of any trace heavy
12 metals are higher in genital talc users
13 compared to nonusers?
14 MS. O'DELL: Object to the
15 form.
16 A. I do not.
17 BY MR. ZELLERS:
18 Q. As we discussed when we talked
19 about asbestos, you cannot evaluate the
20 potential effects of exposure to a substance
21 without factoring in the amount of exposure;
22 is that right?
23 MS. O'DELL: Object to the
24 form.

1 to chromium, cobalt or nickel or any other
2 heavy metal; is that right?
3 A. That is correct.
4 Q. That answer to that question
5 would be true if I asked you about the
6 different fragrance chemicals, correct?
7 MS. O'DELL: Object to the
8 form.
9 A. Also true.
10 BY MR. ZELLERS:
11 Q. You did a risk assessment in
12 this matter; is that right?
13 A. Yes.
14 Q. Do you agree that a complete
15 and proper risk assessment involves four
16 elements?
17 MS. O'DELL: Object to the
18 form.
19 A. Not necessarily.
20 BY MR. ZELLERS:
21 Q. Well, you have to identify a
22 potential hazard; is that right?
23 A. Yes.
24 Q. You've got to do some type of

1 A. It's useful to factor in the
2 amount if the amount is known. If the amount
3 is not known, it's not necessarily required
4 to draw conclusions.
5 BY MR. ZELLERS:
6 Q. In this case, you do not know
7 the amount, be it chromium, cobalt and/or
8 nickel; is that right?
9 MS. O'DELL: Objection to the
10 form.
11 Excuse me. Dr. Carson, as you
12 know, is not being offered as a
13 case-specific expert, so that question
14 sounds like a specific patient, and so
15 I would -- that's my objection.
16 A. I do not know the amount, but
17 my opinion is that any within the
18 microenvironment of the inflammatory process
19 that is occurring due to talc sequestration
20 is contributing to the carcinogenic
21 potential.
22 BY MR. ZELLERS:
23 Q. But you don't know for any
24 individual plaintiff their level of exposure

1 dose-response assessment; is that right?
2 A. Not necessarily.
3 Q. You --
4 MS. O'DELL: Excuse me. If you
5 finished -- if you need to,
6 Dr. Carson, if you're not finished.
7 If you're finished, fine. Sorry.
8 A. A qualitative risk assessment
9 does not necessarily require a dose-response
10 in order to reach valid conclusions.
11 BY MR. ZELLERS:
12 Q. It is not necessary to do a
13 dose-response assessment as part of a risk
14 assessment. Is that your testimony under
15 oath?
16 A. It's not always necessary.
17 Q. Was it necessary in this case?
18 A. Well, I think there is an
19 aspect of dose-response that was performed in
20 the risk assessment process here.
21 Q. What dose-response assessment
22 did you make with respect to chromium, cobalt
23 and nickel and any other heavy metal?
24 A. There's no information

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1 available to do a dose-response estimate for
2 those metals.

3 Q. What information did you rely
4 or use, if any, to make a dose-response
5 assessment with respect to any fragrance
6 chemicals?

7 MS. O'DELL: Objection, form.

8 A. There is no information
9 available to do a dose-response estimate for
10 the fragrances.

11 BY MR. ZELLERS:

12 Q. Did you do any type of exposure
13 assessment in this case?

14 MS. O'DELL: Object to the
15 form, vague.

16 A. I'm not sure exactly what
17 you're -- what you're asking by exposure
18 assessment.

19 BY MR. ZELLERS:

20 Q. Well, an exposure assessment is
21 also part of a risk assessment; is that
22 right?

23 A. In this risk assessment, I
24 considered studies that are reported in the

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1 and the metals were there as the baseline
2 component of the talc formation that they
3 came from.

4 BY MR. ZELLERS:

5 Q. You do not know the amounts of
6 either the heavy metals or the fragrance
7 chemicals in the talcum powder at issue in
8 this case, correct?

9 A. That's -- that's correct, I
10 don't.

11 Q. You do not know -- well, strike
12 that. I'll withdraw that.

13 You brought with you an IARC
14 monograph; is that right?

15 A. I have a couple of them.

16 Q. All right.

17 MS. O'DELL: Are we going to --
18 are you going to move to --

19 MR. ZELLERS: We can take a
20 break if you'd like.

21 MS. O'DELL: Yeah, it's been
22 about an hour and a half.

23 MR. ZELLERS: Sure.

24 THE VIDEOGRAPHER: We're off

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1 scientific and medical literature which have
2 reported the assessment of exposure in these
3 cases in various forms, and I considered
4 those exposure assessments as being valid as
5 reported and considered them as a whole.

6 Q. Did you look at any exposure
7 assessment specific to the alleged heavy
8 metals contained in talcum powder?

9 MS. O'DELL: Object to the
10 form.

11 A. No, I did not.

12 BY MR. ZELLERS:

13 Q. Did you look at any exposure
14 assessment with respect to any fragrance
15 chemicals contained within talcum powder?

16 MS. O'DELL: Object to the
17 form.

18 A. With respect to the fragrance
19 chemicals and the heavy metals, the only
20 exposure assessment that I was able to do was
21 verify that these things were present in
22 materials.

23 The fragrances are always
24 present in whatever form they were added in,

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1 the record 12:32, end of Tape 2.
2 (Recess taken, 12:32 p.m. to
3 1:38 p.m.)

4 THE VIDEOGRAPHER: We're on the

5 record, 1:38, beginning of Tape 3.

6 BY MR. ZELLERS:

7 Q. Dr. Carson, when we left, we
8 were talking about the trace metals and
9 fragrance chemicals in talcum powder,
10 correct?

11 A. Yes.

12 Q. You do not know how much of
13 these trace metals or fragrance chemicals
14 reach the ovaries, correct?

15 A. I don't know specifically how
16 much reaches it, but if I know it's a
17 component of the talc, and if I know the talc
18 reaches it, then I know some of the metals
19 and the fragrances reach it.

20 Q. You don't know the component or
21 the amount of either the trace metals or the
22 fragrance chemicals in the baby powder,
23 correct?

24 A. That's correct.

1 Q. You do not know the exposure of 2 any of the women who are plaintiffs in this 3 litigation to the talcum powder, correct? 4 MS. O'DELL: Individual women? 5 MR. ZELLERS: Yes, individual 6 women. 7 A. I don't, no. 8 BY MR. ZELLERS: 9 Q. You brought with you an IARC 10 monograph, and I think you've got several 11 monographs that are on your literature list; 12 is that right? 13 A. That's correct. 14 Q. Generally, IARC classifies 15 chemicals and agents from Group 1, 16 carcinogenic to humans, down to Group 4, 17 probably not carcinogenic to humans; is that 18 right? 19 A. That's correct. 20 Q. Does the classification of a 21 substance as a known probable or possible 22 carcinogen by IARC, and IARC is International 23 Agency for Research on Cancer, or by the 24 National Toxicology Program or the U.S.	Page 178	Page 180
1 Environmental Protection Agency, mean that 2 the substance can cause all types of cancers 3 in humans by any exposure route? 4 MS. O'DELL: Object to the 5 form. 6 A. No. 7 BY MR. ZELLERS: 8 Q. There are different cancers 9 that may be associated with different 10 chemicals or agents; is that right? 11 A. And different routes of 12 exposure. 13 Q. You can have an agent that is a 14 carcinogen or a probable or possible 15 carcinogen for one type of cancer, but not 16 for another type of cancer, correct? 17 A. That's correct. 18 Q. You can have an agent or a 19 chemical that's a carcinogen for one route of 20 exposure for a chemical or agent but is not 21 carcinogenic for a different route of 22 exposure, correct? 23 MS. O'DELL: Objection to form. 24 A. Yes.	Page 179	Page 181

<p>1 talcum powder can reach the ovaries through 2 inhalation, correct? 3 MS. O'DELL: Object to the 4 form. 5 A. That is correct, although 6 there -- yes, that's correct. 7 BY MR. ZELLERS: 8 Q. You have never performed any 9 study yourself pertaining to whether inhaled 10 talc can migrate to the ovaries; is that 11 right? 12 A. I have not, although it has 13 been used as an explanation of how talc 14 particles might have reached the ovaries in 15 persons who did not have another form of 16 exposure. 17 Q. If inhalation is the exposure 18 path for talc, shouldn't the lungs bear more 19 of a burden? 20 A. Yes. 21 Q. Why, then, isn't there an 22 epidemic of mesothelioma in women who use 23 talcum powder? 24 A. Because the primary route is</p>	<p>Page 182</p> <p>1 A. The -- I'm sorry. The Heller 2 study was talc, which I didn't cite here. 3 Halme was a retrograde menstruation study via 4 the fallopian tubes, and Sjösten was starch 5 particles. 6 Q. The only study -- and this is 7 not one that you cited, but you've now 8 referred to that involved talc, was Heller; 9 is that right? 10 A. Well, it looked at -- it didn't 11 look at transport inasmuch as it looked at 12 the presence of talc particles in the ovaries 13 and found them with or without the history of 14 talc powder use. 15 Q. Heller looked at 24 patients; 16 is that right? 17 A. I don't know, but that sounds 18 about right. 19 Q. Half of them had a history of 20 using talc products, half did not? 21 MS. O'DELL: Object to form. 22 A. That's correct. 23 BY MR. ZELLERS: 24 Q. Heller found talc in the</p> <p>Page 184</p>
<p>1 perineal via the reproductive tract. 2 Q. You discuss that on page 7 of 3 your report; is that right? 4 A. Yes. 5 Q. You cite a number of studies 6 for the proposition that talc can be 7 transported from the perineum to the upper 8 reproductive tract and body cavity; is that 9 right? 10 A. That's correct. 11 Q. None of the articles that you 12 cite actually looked at whether talc can 13 migrate from perineal application through the 14 fallopian tubes to the ovaries, did they? 15 A. Let me just refresh my memory 16 for a moment here. Egli was carbon black. 17 Venter was radioactive technetium labeled 18 albumin. Let me see. Blumenkrantz -- I have 19 my notes here. 20 Yeah, I can't remember what the 21 substance was in Blumenkrantz. Sjösten, 22 starch -- yeah, Blumenkrantz was retrograde 23 menstruation. Halme was talc. 24 Q. Which study was talc?</p>	<p>Page 183</p> <p>1 tissues of all 24 patients; is that right? 2 A. That is correct. 3 Q. I believe we covered this 4 before, but just to confirm: There are no 5 published articles that you're aware of that 6 show granulomas, fibrosis or adhesions 7 anywhere in the reproductive tract of a woman 8 as a result of external genital talc 9 application, correct? 10 MS. O'DELL: Object to the 11 form. 12 A. I believe that's the case, 13 although there have been granulomas found in 14 some cases of cancer where they reported 15 having used talc. 16 BY MR. ZELLERS: 17 Q. Of the cases or the studies you 18 cited here, Egli, that involved just three 19 women, correct? 20 A. That was just -- that was an 21 experimental study of the transport of carbon 22 particles. 23 Q. The women were in a lithotomy 24 position; is that right?</p> <p>Page 185</p>

<p>1 A. That's correct.</p> <p>2 Q. And that means that they had</p> <p>3 their legs up in the air, correct?</p> <p>4 A. Correct.</p> <p>5 Q. Those conditions -- well,</p> <p>6 strike that.</p> <p>7 They were injected with</p> <p>8 oxytocin; is that right?</p> <p>9 A. It is.</p> <p>10 Q. That was to aid in the</p> <p>11 transport of the particles, correct?</p> <p>12 MS. O'DELL: Object to the</p> <p>13 form.</p> <p>14 A. I believe that was the author's</p> <p>15 theory.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Those are different</p> <p>18 circumstances or conditions from a woman who</p> <p>19 would apply a talc to her genital area</p> <p>20 standing up, correct?</p> <p>21 A. Well, they are, but I'm not</p> <p>22 sure that that position is really pertinent</p> <p>23 to the migration of particles through the</p> <p>24 reproductive tract.</p>	<p>Page 186</p> <p>1 of all these studies -- that they were using</p> <p>2 various particles that could be detected at</p> <p>3 the other end, and so this was an attempt to</p> <p>4 do an experimental study which would cause no</p> <p>5 harm that would give them an answer regarding</p> <p>6 transport through the reproductive tract.</p> <p>7 Q. In this study, particles were</p> <p>8 introduced into the reproductive tract, not</p> <p>9 externally; is that right?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 A. That is correct.</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Women were given Pitocin to</p> <p>15 stimulate uterine contractions; is that</p> <p>16 right?</p> <p>17 A. That's the same as oxytocin.</p> <p>18 Q. And that's a yes, correct?</p> <p>19 A. Yes.</p> <p>20 Q. Again, as with the Egli study,</p> <p>21 the women were inverted in the Trendelenburg</p> <p>22 position with their head down, legs up when</p> <p>23 the particles were administered; is that</p> <p>24 right?</p>
<p>1 Q. Is it your pos- -- is it your</p> <p>2 testimony that if a woman is in a lithotomy</p> <p>3 position with their legs up into the air,</p> <p>4 that that is comparable with respect to the</p> <p>5 migration of talc to a woman who's standing</p> <p>6 up and using it in her perineal region?</p> <p>7 A. It may be.</p> <p>8 Q. Are you an expert on that?</p> <p>9 A. I'm not.</p> <p>10 Q. The authors in Egli, they</p> <p>11 stated it was possible that the study</p> <p>12 observed false positives due to sample</p> <p>13 contamination because they failed to use</p> <p>14 liquid or filter blanks as negative controls,</p> <p>15 correct?</p> <p>16 A. I don't recall that, but that</p> <p>17 may be the case.</p> <p>18 Q. You refer to a study by Venter.</p> <p>19 That involved a radioactive particulate</p> <p>20 matter, correct?</p> <p>21 A. Yes.</p> <p>22 Q. Did not involve talc particles,</p> <p>23 correct?</p> <p>24 A. The point of the study was --</p>	<p>Page 187</p> <p>1 A. I believe so.</p> <p>2 Q. Is it possible that the</p> <p>3 radionuclides can leach from the particles?</p> <p>4 A. I don't know the answer to</p> <p>5 that, but it was radioactive technetium that</p> <p>6 was bound to albumin.</p> <p>7 Q. The Sjösten study that you</p> <p>8 cite, that did not use -- involve the</p> <p>9 perineal use of talc, but an exam with a</p> <p>10 force to the cervix; is that right?</p> <p>11 A. Excuse me. An exam with what?</p> <p>12 Q. So it involved an exam with</p> <p>13 force to the cervix?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. Well, this was -- this was done</p> <p>17 as an experimental study on women who were</p> <p>18 scheduled to get hysterectomies and they did</p> <p>19 it on some women one day prior to the</p> <p>20 hysterectomy and another group of women four</p> <p>21 days prior to the hysterectomy, and they used</p> <p>22 gloves that were powdered with starch and</p> <p>23 gloves that were not powdered with starch.</p> <p>24 And so they had what's called a</p>

1 Latin square design, and they were able at 2 the point of the hysterectomy of taking 3 samples of the fallopian tubes and washing 4 them to determine whether or not particles 5 were found in the tubes. 6 BY MR. ZELLERS: 7 Q. What they actually found was 8 that, whether the women were examined with 9 gloves with the starch particles or not, they 10 found starch particles in both, both groups, 11 correct? 12 A. It is true. 13 Q. Tubal ligation, you refer to 14 tubal ligation and use that or purport to say 15 that that supports your migration theory, 16 correct? 17 A. It does. 18 Q. Your testimony is that for 19 patients who have had a tubal ligation, that 20 they are at a lesser risk of the talc -- let 21 me withdraw that. 22 Explain to us very briefly why 23 you believe that tubal ligation supports your 24 migration theory.	Page 190	Page 192 1 Q. In fact, in Terry -- well, and 2 let me mark it for you so you've got it in 3 front of you. 4 THE WITNESS: Okay. I'm going 5 to move this binder for the time 6 being, if you don't mind. 7 MR. ZELLERS: Oh, yes, I'll 8 hand you the articles that I refer to, 9 but if you need it, just pull it out. 10 THE WITNESS: Thank you. 11 (Carson Deposition Exhibit 19 12 marked.) 13 BY MR. ZELLERS: 14 Q. Deposition Exhibit 19 is the 15 2013 Terry meta-analysis that you referred to 16 in your report; is that right? 17 A. Yes. 18 Q. That's a pooled analysis of 19 eight studies; is that right? 20 A. Yes. 21 Q. Okay. This pooled analysis of 22 eight studies relating to genital powder use 23 and the risk of ovarian cancer shows no 24 variation in the risk in talc users based on
1 A. If the pathway of exposure of 2 the ovaries that results in ovarian cancer is 3 via the reproductive tract, then tubal 4 ligation, which closes off the fallopian 5 tubes, would interrupt that pathway and 6 result in reduced exposure; therefore, you 7 would expect a reduced incidence of cancer in 8 those women. 9 Q. In fact, though, that is not 10 what has been reported or at least that has 11 not been consistently reported in the 12 studies; is that right? 13 A. Well, it actually has been a 14 positive factor in a number of the 15 epidemiologic studies that have looked at the 16 ovarian cancer incidence and have been able 17 to include tubal ligation as a historical 18 factor in their analysis. 19 Q. Did you look at the Terry 2013 20 meta-analysis? 21 A. Yes. 22 Q. You cite that in support of 23 your positions in this case; is that right? 24 A. I did.	Page 191	Page 193 1 whether they had a tubal ligation or 2 hysterectomy; is that right? 3 A. I think that's the conclusion 4 of the authors here, but it's not the 5 conclusion of the individual authors of the 6 studies who did the original investigations. 7 Q. Well, it is the conclusion of 8 the authors based upon their meta-analysis of 9 eight studies; is that right? 10 MS. O'DELL: Object to the 11 form. 12 A. Let me just check that. 13 (Document review.) 14 A. Yes. 15 BY MR. ZELLERS: 16 Q. If you look at pages 819, 17 carried over to 820, I'm reading: Our 18 finding of slightly attenuated associations 19 following exclusion of women with powder 20 exposure after tubal ligation or hysterectomy 21 are not supportive of this hypothesis, but 22 risk estimates in this subgroup analysis may 23 have randomly differed from those including 24 all women because of the reduction in sample

1 size. 2 Is that right? 3 A. Yes. 4 Q. Essentially, looking at these 5 eight studies in this meta-analysis, Terry 6 did not find that exposure to genital powder 7 applications that occurred before tubal 8 ligation or hysterectomy made any substantive 9 difference in the results; is that right? 10 A. Yes, but the point is that the 11 authors didn't find that it did not make a 12 difference either. They -- they ended up 13 with a study with reduced numbers that they 14 couldn't make determinations about. 15 Q. If, though, the migration 16 theory is correct, you would expect that 17 there would be a reduction in the incidence 18 of ovarian cancer for women who have had a 19 tubal ligation or hysterectomy; is that 20 right? 21 MS. O'DELL: Object to the 22 form. 23 A. Yes, that is correct. 24 ///	Page 194 1 THE WITNESS: Thank you. 2 MS. O'DELL: Thank you. 3 BY MR. ZELLERS: 4 Q. This is also a study, 5 Exhibit 20, Cramer 2016, that you cite as 6 supportive of your opinions in this case, 7 correct? 8 A. Correct. 9 Q. Cramer actually looked at 10 whether or not there was any greater 11 association of talc use and ovarian cancer 12 and whether or not women who had a tubal 13 ligation or hysterectomy had a reduced 14 incidence of the disease; is that correct? 15 A. Yes. 16 Q. Turn to page 337, and then it 17 carries over to 339. They're talking -- 18 they, being the authors -- of their results, 19 and I'm reading just at the very bottom of 20 337, carried over to 339: By test for 21 interaction, column 3, the association was 22 significantly greater for women who were 23 African-American, had no personal history of 24 breast cancer, had a tubal ligation or
1 BY MR. ZELLERS: 2 Q. And that was not found in the 3 Terry meta-analysis that you cite; is that 4 right? 5 MS. O'DELL: Object to the 6 form. 7 A. That is correct, but it was 8 found in the baseline studies that were, in 9 part, included in this meta-analysis. 10 BY MR. ZELLERS: 11 Q. Are you -- you also cite the 12 Cramer study, 2016; is that right? 13 A. Yes. 14 Q. I've got a few questions for 15 you on the Cramer study, but let me just ask, 16 since we're at this part right now. 17 Do you have the Cramer study? 18 I'll hand it to you. 19 A. If you have a copy, I'd 20 appreciate it. 21 MR. ZELLERS: Sure. We'll mark 22 the Cramer study as Exhibit 20. 23 (Carson Deposition Exhibit 20 24 marked.)	Page 195 1 hysterectomy. 2 Is that right? 3 MS. O'DELL: Object to the 4 form. 5 A. Beginning on page 337? 6 BY MR. ZELLERS: 7 Q. Yes. 8 A. I'm sorry, if you could -- 9 Q. Sure. At the very end of 337. 10 A. Okay. 11 Q. So they're looking at -- 12 A. Oh, by tests for interaction. 13 Q. Yes. 14 A. Yeah. 15 Q. So if your migration theory is 16 correct, you would expect there to be a lower 17 incidence of ovarian cancer in women who have 18 had a tubal ligation or hysterectomy, 19 correct? 20 MS. O'DELL: Object to the 21 form. 22 A. That is correct. 23 BY MR. ZELLERS: 24 Q. All right. Cramer finds by

1 test for interaction the association was 2 significantly greater for women who -- and 3 then I'm skipping African-American, but I'm 4 coming down to -- have a tubal ligation or 5 hysterectomy. 6 Is that correct? 7 A. Yes. 8 Q. All right. If talcum powder 9 migrates from the perineal region to the 10 ovaries, shouldn't exposure to -- exposure to 11 talc be far greater in concentration in the 12 rectal, vulvar, vaginal, cervical and uterine 13 tissues which are closer to the area of 14 initial exposure? 15 MS. O'DELL: Objection to form. 16 A. Well, the acute exposure would 17 be greater. 18 BY MR. ZELLERS: 19 Q. You would expect because the 20 acute exposure is greater, that there should 21 be inflammation caused in these organs and 22 areas, correct? 23 A. No. The inflammation and 24 oxidative stress is an ongoing process that	Page 198	Page 200 1 to talcum powder? 2 MS. O'DELL: Object to the 3 form. 4 A. It doesn't -- it doesn't 5 eliminate exposure, but it does remove 6 residual exposure, as does sweating, other 7 body secretions and so forth. 8 BY MR. ZELLERS: 9 Q. Are you aware of any studies 10 that show inflammation or oxidative stress as 11 a result of genital talc use in the rectal, 12 vulvar, vaginal, cervical and uterine 13 tissues? 14 A. No, I'm not. 15 Q. Under your theory or belief 16 that talcum powder travels from the perineal 17 region to the ovaries through the woman's 18 reproductive tract, talcum powder must travel 19 past the labia, through the vagina, through 20 the cervix, and then to the uterus; is that 21 right? 22 A. That's correct. 23 Q. And then the powder travels 24 through the uterus and into the fallopian
1 has to develop over time, and it occurs on a 2 chronic basis in areas where foreign bodies 3 locate and reside. And talc and talcum 4 powder are examples of foreign bodies that 5 have the right characteristics to cause 6 chemotaxis in reactive oxygen species and 7 oxidative status. 8 Q. Well, in fact, there would be 9 chronic exposure, so if we're dealing with, 10 as you described in the very beginning, which 11 you were asked, to look at the habitual use 12 of talcum powder, that would create exposure 13 on a chronic basis to the rectal area and 14 tissues, vulvar, vaginal, cervical and 15 uterine tissues; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. I suspect if one doesn't bathe, 19 that would be more of an issue, but most 20 people bathe regularly as well. 21 BY MR. ZELLERS: 22 Q. And bathing regularly 23 eliminates any exposure in the rectal, 24 vulvar, vaginal, cervical and uterine tissues	Page 199	Page 201 1 tubes to reach the ovaries; is that right? 2 A. Yes. 3 Q. On what studies are you relying 4 to say that talcum powder affects the body 5 differently when it's applied to the perineal 6 region and travels to the cervix compared to 7 when it is applied directly to the cervix? 8 A. I don't think -- 9 MS. O'DELL: Object to the 10 form. 11 A. -- there is much of a 12 difference. 13 BY MR. ZELLERS: 14 Q. You would expect there to be a 15 comparable similar result whether talcum 16 powder is applied directly to the cervix 17 through the use of dusting of a diaphragm as 18 there is to the use of talcum powder in the 19 genital areas; is that right? 20 A. That is correct. I think the 21 two differ probably in terms of quantity very 22 significantly. But other than that, they 23 would be the same. 24 Q. When applied to the perineal

Page 202	Page 204
Page 203	Page 205

1 region, talcum powder would also be in close
2 contact with a woman's urethra; is that
3 right?
4 A. Yes.
5 Q. Substances, and in your view,
6 talcum powder, are capable of traveling up
7 the urethra; is that right?
8 MS. O'DELL: Object to the
9 form.
10 A. The urethra has a sphincter
11 which prevents transport beyond that point.
BY MR. ZELLERS:
13 Q. Women get urinary tract
14 infections when bacteria travels up the
15 urethra; is that right?
16 A. That's correct.
17 Q. Studies, though, do not show an
18 increase in bladder cancer with talcum powder
19 use; is that right?
20 A. I don't believe that talcum
21 powder transports in any appreciable amount
22 up the urethra into the bladder.
23 Q. Studies do not show an increase
24 in rectal cancer with talcum powder use, do

1 about to reconsider that?
2 A. Because the chatter is that
3 this is something that's on their radar
4 screen currently.
5 Q. What chatter are you aware of?
6 And what is chatter?
7 A. It's discussion among -- within
8 the scientific and healthcare community of
9 things that are on the drawing board for
10 IARC.
11 Q. Do you know whether or not
12 IARC -- well, strike that.
13 IARC has not changed its
14 position that the migration theory and
15 evidence for the migration theory is weak; is
16 that right?
17 MS. O'DELL: Object to the
18 form.
19 A. They have not changed their
20 position that was published in the 2010
21 monograph.
BY MR. ZELLERS:
23 Q. All right. You have heard
24 chatter that they may look at it again; is

1 they?
2 A. No.
3 Q. Are you aware that that IARC --
4 and you're familiar with IARC, right?
5 A. Yes.
6 Q. Are you aware that IARC rejects
7 this migration theory and calls the evidence
8 weak?
9 MS. O'DELL: Object to the
10 form.
11 A. The IARC has made that
12 statement in their -- I think the 2006 review
13 that resulted in their recent monograph, but
14 I think they're about to reconsider that.
BY MR. ZELLERS:
16 Q. Well, they also have stated
17 that in 2010; is that right?
18 A. Well, that's the --
19 MS. O'DELL: Object to the
20 form.
21 A. That's the monograph from the
22 2006 review.
BY MR. ZELLERS:
23 Q. Why do you believe that they're

1 that right?
2 A. Yes.
3 Q. Other than this chatter, you're
4 unaware of any other -- well, strike that.
5 You're unaware of any change in
6 IARC's position with respect to migration,
7 correct?
8 A. Well, an example of what I'm
9 talking about is the Health Canada report,
10 which has contradicted what is found in the
11 IARC monograph and is more current and
12 considers information that will probably go
13 into the next IARC review.
14 MR. ZELLERS: Move to strike as
15 nonresponsive.
BY MR. ZELLERS:
17 Q. Does IARC review and rely on
18 draft assessments in formulating their
19 positions?
20 A. IARC relies on primary studies.
21 Q. Not draft assessments, correct?
22 A. Well, the draft assessment that
23 I guess you're referring to, the Health
24 Canada draft assessment, is derived from

1 primary studies, the same ones that will be 2 considered by IARC. 3 Q. All right. As of today, IARC's 4 published position is that evidence of a 5 migration theory of talcum powder migrating 6 to the ovaries is weak, correct? 7 A. Yes. 8 Q. Have you conducted any tests or 9 experiments with respect to your theory or 10 position that talc migrates to the ovaries 11 through the reproductive tract? 12 A. No, I haven't. 13 Q. How much talc actually reaches 14 the ovaries in your opinion? 15 A. I can't answer that question 16 because the dose has not been quantified. 17 Q. Does it only reach the ovaries 18 during certain times? 19 A. I don't believe so. I think 20 there are many circumstances whereby that 21 migration pathway is functional, and in my 22 belief, the pathway from the perineum to the 23 cervix is pretty much an open channel, and 24 then it continues to be open pretty much all	Page 206 1 is that right? 2 A. That is correct. 3 Q. You are not one of those 4 physicians, correct? 5 A. I don't claim to be a 6 specialist in gynecology. 7 Q. Your third opinion is that the 8 ovaries lack an intrinsic elimination system; 9 is that right? 10 A. That's correct. 11 Q. Is "intrinsic elimination 12 system" a recognized term of art that's used 13 by gynecologists? 14 A. I don't think so. It was just 15 the term I used to describe the situation. 16 Q. Is "intrinsic elimination 17 system" a term of art used by oncologists? 18 A. The same answer. 19 Q. Have you seen published studies 20 that use that term? 21 A. I don't know. I suspect I 22 could have. It's apparently a small number 23 of ways to describe that in a few words. 24 Q. You do not cite to any studies	Page 208
1 the way into the pelvic cavity. 2 Q. You are not a specialist in 3 women's health issues, correct? 4 MS. O'DELL: Object to the 5 form. 6 A. Well, I'm a doctor. I've 7 examined a lot of women. 8 BY MR. ZELLERS: 9 Q. Are you -- 10 MS. O'DELL: Excuse me. Are 11 you finished, sir? 12 THE WITNESS: Yes, I'm 13 finished. 14 MS. O'DELL: Okay. 15 BY MR. ZELLERS: 16 Q. Are you an expert in the 17 women's reproductive tract? 18 A. I've taken it apart and put it 19 back together again in medical school, and in 20 other settings I've done OB/GYN rotations. 21 I've participated in pelvic surgeries. I 22 understand the anatomy. 23 Q. There are physicians who are 24 specialists in the female reproductive tract;	Page 207 1 in the body of your report to support your 2 theory that the ovaries do not have an 3 intrinsic elimination system, correct? 4 A. That's correct. 5 Q. You have not conducted any 6 tests to show that exposure to the ovaries to 7 particulate matter, if any, is longer than 8 exposure to other parts of the female 9 anatomy; is that right? 10 MS. O'DELL: Object to the 11 form. 12 A. I have not conducted any such 13 tests. 14 BY MR. ZELLERS: 15 Q. Is the cervix more or less 16 sensitive to the impact of foreign particles 17 than the ovaries? 18 MS. O'DELL: Object to the 19 form. 20 A. I think that the important 21 point is the residence time that exists, and 22 the cervix is not presented with things for 23 an extended time like the ovaries are in 24 relation to things like talc. But it is	Page 209

<p>1 sensitive.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. All right. Your fourth</p> <p>4 theory -- or strike that.</p> <p>5 Your fourth opinion is that the</p> <p>6 epidemiological studies show a positive</p> <p>7 relationship between regular perineal</p> <p>8 application of talcum powder and ovarian</p> <p>9 cancer; is that right?</p> <p>10 A. That's correct.</p> <p>11 Q. The studies that you reference</p> <p>12 in this opinion are referred to on pages 6</p> <p>13 and 7 of your report; is that right?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. Most of them, yes.</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. You conclude that when</p> <p>19 confounding and bias are exhaustively</p> <p>20 considered -- and do you believe you've done</p> <p>21 that here?</p> <p>22 A. I am restating what authors of</p> <p>23 the primary studies have done. I'm</p> <p>24 evaluating the consistency of the evidence,</p>	<p>Page 210</p> <p>1 A. Yes.</p> <p>2 MS. O'DELL: Object to the</p> <p>3 form.</p> <p>4 BY MR. ZELLERS:</p> <p>5 Q. Are you familiar with the term</p> <p>6 "person-years" as it relates to</p> <p>7 epidemiological study?</p> <p>8 A. Yes, I am.</p> <p>9 Q. What is -- strike that.</p> <p>10 How are person-years</p> <p>11 calculated?</p> <p>12 A. They are calculated by -- in</p> <p>13 relation to an exposure or to an existing</p> <p>14 treatment, they're calculated by multiplying</p> <p>15 the duration of the treatment or exposure in</p> <p>16 years by the number of people being studied.</p> <p>17 And that -- the result is person-years.</p> <p>18 Q. Can you explain the difference</p> <p>19 between high-grade serous and low-grade</p> <p>20 serous cancer?</p> <p>21 A. High-grade serous cancer has</p> <p>22 a -- is less differentiated and has a greater</p> <p>23 propensity for metastasis and invasion.</p> <p>24 Q. Are you aware that the</p>
<p>1 not the basic evidence itself.</p> <p>2 Q. The apparent cause and effect</p> <p>3 relationship between perineal talcum powder</p> <p>4 use and ovarian cancer amounts to about a 30%</p> <p>5 increased risk of ovarian cancer in talcum</p> <p>6 powder users.</p> <p>7 Is that your opinion in this</p> <p>8 case?</p> <p>9 A. It is.</p> <p>10 Q. And that is your opinion from</p> <p>11 reviewing the epidemiologic studies that you</p> <p>12 cite in your report?</p> <p>13 A. Yes.</p> <p>14 Q. When epidemiologists refer to</p> <p>15 the statistical power of a study, what are</p> <p>16 they referring to?</p> <p>17 A. Statistical power refers to the</p> <p>18 ability of a study design, if carried out, to</p> <p>19 detect a signal in the data of a particular</p> <p>20 magnitude.</p> <p>21 Q. In plain English, statistical</p> <p>22 power is the likelihood that a study will</p> <p>23 detect an effect when there is an effect to</p> <p>24 be detected; is that fair?</p>	<p>Page 211</p> <p>1 epidemiological literature shows that these</p> <p>2 are very different cancers?</p> <p>3 A. They behave quite differently,</p> <p>4 yes.</p> <p>5 Q. Do you know what publication</p> <p>6 bias is?</p> <p>7 A. Yes.</p> <p>8 Q. What is publication bias?</p> <p>9 A. Publication bias is the</p> <p>10 tendency to -- to spin a certain argument</p> <p>11 in -- in order to influence acceptance of</p> <p>12 publications.</p> <p>13 Q. Is that a recognized issue in</p> <p>14 the field of epidemiology, at least as you've</p> <p>15 observed?</p> <p>16 A. It's a -- it's not necessarily</p> <p>17 recognized in the field of epidemiology. It</p> <p>18 exists in all scientific endeavors.</p> <p>19 Q. Is it something that you and</p> <p>20 other physicians and experts and scientists</p> <p>21 need to be aware of?</p> <p>22 A. Yes. I think we're all exposed</p> <p>23 to the effects of that and warned about it as</p> <p>24 we go through our careers.</p>

<p>1 Q. When I asked you early on what 2 your methodology was, you looked at the 3 published literature, you looked at some 4 websites I think that you told us about 5 earlier, and then you performed a risk 6 assessment and considered whether perineal 7 use of talc products poses a safety risk to 8 consumers; is that right? 9 MS. O'DELL: Object to the 10 form. 11 A. Well, that's a gross 12 oversimplification of the risk assessment 13 process that I performed. 14 The review of the literature, 15 which was based on the question that I was 16 asked to address, was a fairly exhaustive one 17 which incorporated a search for every 18 pertinent publication that was available and 19 included multiple languages. 20 It then was -- proceeded into a 21 distillation of the facts that were -- that 22 were claimed based on those individual 23 studies and investigations, and a comparison 24 of those, one with another, eventually</p>	<p>Page 214</p> <p>1 been published as well. And I felt that was 2 sufficient to be able to produce this report 3 that addressed the question I was asked. 4 Q. As you told us earlier, you 5 have never published a meta-analysis on any 6 topic; is that right? 7 A. That's correct. 8 Q. You cite to some of the 9 available studies on talcum powder use in 10 ovarian cancer, but not to all of the 11 studies, correct? 12 MS. O'DELL: Object to the 13 form. 14 A. That's true. 15 BY MR. ZELLERS: 16 Q. What was your reasoning for 17 focusing on certain studies and excluding 18 other studies? 19 A. The studies that I referenced 20 were those that had specific aspects that 21 directly influenced my report or my 22 conclusions or that I felt were illustrative 23 of comments I was making in the report, and 24 that's why they were referenced.</p> <p>Page 216</p>
<p>1 considering them all as a whole to arrive at 2 conclusions that addressed the question. 3 BY MR. ZELLERS: 4 Q. That was your methodology; is 5 that right? 6 A. That is the methodology, yes. 7 Q. Did you consider the Bradford 8 Hill criteria or factors in reaching your 9 conclusions and opinions in this matter? 10 A. That's part of the methodology 11 which is outlined in my report. 12 Q. In analyzing the Bradford Hill 13 criteria, did you conduct a meta-analysis of 14 the available data to reach a conclusion 15 about the relative risk? 16 A. No, I did not. 17 Q. Why didn't you conduct a 18 meta-analysis for this case? 19 A. I did not have the time to do a 20 meta-analysis in this case, first of all. 21 Secondly, there have been a number of other 22 meta-analyses performed, and I had those 23 results available to me in addition to 24 various reviews of the literature that have</p>	<p>Page 215</p> <p>1 All of the studies may not have 2 risen to that -- the level of requiring being 3 referenced, but pretty much all the studies 4 are included in the literature that I 5 reviewed. 6 Q. You cite in the report the 7 studies that were favorable or supportive of 8 your opinions, correct? 9 A. Well, I cited a number of 10 studies, not all of which were favorable to 11 my overall opinions, at least not on the 12 surface. 13 Q. Did you cite all of the studies 14 that you believe in one way or another 15 support your opinions in this case? 16 A. I don't think so. 17 Q. You believe there are 18 additional studies that support your opinions 19 that you did not cite? 20 A. They're in the literature list. 21 Q. Did you cite the opinions that 22 refuted -- strike that. 23 Did you cite the studies that 24 refuted your opinions in this matter?</p> <p>Page 217</p>

<p>1 A. I cited some studies that had 2 opinions that -- or that had conclusions that 3 did not necessarily agree with mine, but I 4 don't think they refuted my conclusions. 5 Q. Do you believe the standard for 6 proving causation in the scientific 7 literature is the same one that applies in 8 this litigation? 9 MS. O'DELL: Object to the 10 form. 11 A. I don't know that. 12 BY MR. ZELLERS: 13 Q. A document you brought here 14 today was an FDA letter? 15 A. Yeah, I think you marked it. 16 Q. I did mark it. Why don't you 17 see if you could find it so I can ask you a 18 couple of questions about it. 19 A. There it is. That one? 20 Q. Yes. Exhibit 10 is an FDA 21 letter dated April 1st of 2014 to a 22 Dr. Epstein; is that right? 23 A. Yes. 24 Q. That is a document that you</p>	<p>Page 218</p> <p>1 more detail to be able to answer that 2 specifically. 3 Q. Well, essentially, based upon 4 its analysis as of 2014, the FDA concluded 5 that causation had not been established as 6 between genital talcum powder use and ovarian 7 cancer or an increased risk of ovarian 8 cancer, correct? 9 A. Well, it said that an updated 10 review failed to identify any new compelling 11 literature data or new scientific evidence. 12 I don't think they indicate here that they 13 actually did a standard review of that 14 literature. 15 Q. Well, take a look, if you will, 16 at page 4. The FDA sets forth its 17 epidemiology and etiology findings; is that 18 right? 19 A. Yes. 20 Q. The FDA has a number of very 21 capable physicians, scientists, 22 toxicologists, pharmacologists and medical 23 professionals; is that right? 24 MS. O'DELL: Object to the</p> <p>Page 220</p>
<p>1 reviewed and considered as part of your 2 analysis of this case; is that right? 3 A. Yes. 4 Q. Do you believe that that 5 exhibit, Exhibit 10, is supportive of your 6 opinions in this matter? 7 A. I don't think it's very 8 supportive. It's -- it's in response to a 9 proposal from a citizens voluntary agency to 10 provide more stringent labeling on talcum 11 powder products, and the agency rejected 12 the -- that petition. 13 Q. The FDA is the regulatory body 14 in the United States that oversees food, drug 15 and cosmetics; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. Yes. 19 BY MR. ZELLERS: 20 Q. This letter -- strike that. 21 In this letter the FDA goes 22 through and analyzes some of the Bradford 23 Hill factors; is that right? 24 A. I'd have to look at this in</p>	<p>Page 219</p> <p>1 form. 2 A. I don't know if they're still 3 working, but they have good people on staff. 4 BY MR. ZELLERS: 5 Q. And just so, a year or two or 6 three, if this transcript is ever reviewed, 7 we are in the midst of a shutdown of at least 8 portions of the government; is that right? 9 A. That's correct. 10 Q. And that is what your comment 11 was directed to, correct? 12 A. That is correct. 13 Q. On page 4 the FDA states: 14 After consideration of the scientific 15 literature submitted in support of both 16 citizens' petitions, FDA found. 17 And then, number 2, that 18 several of the studies acknowledge biases in 19 the study design and no single study has 20 considered all the factors that potentially 21 contribute to ovarian cancer, including 22 selection bias and/or uncontrolled 23 confounding that result in spurious positive 24 associations between talc use and ovarian</p> <p>Page 221</p>

1 cancer risk. 2 Did I read that correctly? 3 A. You did read it correctly. 4 Q. Does that appear to be at least 5 one of the conclusions of the FDA after 6 considering the scientific literature as of 7 early 2014? 8 MS. O'DELL: Object to the 9 form. 10 A. Yes, that is listed as an FDI 11 finding -- FDA finding. 12 BY MR. ZELLERS: 13 Q. The FDA noted that a 14 dose-response -- strike that. 15 The FDA noted that 16 dose-response evidence is lacking; is that 17 right? 18 A. A dose-response -- 19 Q. Two things. The FDA notes that 20 there's a lack of consistency in the study 21 results, correct? 22 MS. O'DELL: Where are you 23 reading? I'm sorry. 24 MR. ZELLERS: I'm looking at	Page 222 1 form. 2 A. That is correct. 3 BY MR. ZELLERS: 4 Q. You are a paid expert for the 5 plaintiffs in this litigation; is that right? 6 A. That is correct. 7 Q. To your knowledge, the FDA is 8 not paid -- well, let me withdraw that. 9 A. I wouldn't go out on a limb 10 there. 11 Q. Number 4, Conclusion 4, a 12 cogent biological mechanism by which talc 13 might lead to ovarian cancer is lacking. 14 Exposure to talc does not account for all 15 cases of ovarian cancer and there was no 16 scientific consensus on the proportion of 17 ovarian cancer cases that may be caused by 18 talc exposure. 19 Was that a conclusion of the 20 FDA based upon its review of the 21 epidemiologic literature? 22 MS. O'DELL: Object to the 23 form. 24 A. Yes, it was, and it's one that	Page 224
1 Conclusion 3. 2 THE WITNESS: Point 3. 3 A. They found that the 4 case-control studies did not demonstrate a 5 consistent positive association across 6 studies; although some studies have found 7 small positive associations between talc and 8 ovarian cancer, but lower confidence limits 9 are often close to 1, and dose-response 10 evidence is lacking. 11 BY MR. ZELLERS: 12 Q. That was FDA's conclusion 13 number 3 based upon its review of the 14 scientific literature; is that right? 15 MS. O'DELL: Object to the 16 form. 17 A. It's correct. It's not a valid 18 interpretation of the statistical results, 19 but that was one of their findings. 20 BY MR. ZELLERS: 21 Q. Well, that was their finding. 22 You disagree at least in part with their 23 finding; is that right? 24 MS. O'DELL: Object to the	Page 223 1 I also disagree with. 2 BY MR. ZELLERS: 3 Q. IARC also considered the 4 Bradford Hill considerations; is that right? 5 A. Yes, it did. 6 Q. IARC rejected classification of 7 talc as a carcinogenic, instead assigning it 8 to the classification of possibly 9 carcinogenic to humans; is that correct? 10 A. That's correct. 11 Q. We've already discussed the 12 IARC categories briefly, but let's mark a 13 document from the IARC website as to the 14 classifications, Exhibit 21. 15 (Carson Deposition Exhibit 21 16 marked.) 17 BY MR. ZELLERS: 18 Q. Tell me if you recognize that. 19 A. Yes. 20 Q. Exhibit 21 is from the IARC 21 website, and it goes through the 22 classifications of different agents that have 23 been made by the International Agency for 24 Research on Cancer; is that right?	Page 225

<p>1 A. Yes, that's correct.</p> <p>2 Q. It has studied and included 120</p> <p>3 agents in the Group 1 category, which is</p> <p>4 carcinogenic to humans, correct?</p> <p>5 A. That's correct.</p> <p>6 Q. That's the only category in</p> <p>7 which IARC finds sufficient evidence in</p> <p>8 humans, correct?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. That's the category that</p> <p>12 represents substances for which there is</p> <p>13 sufficient and irrefutable evidence of human</p> <p>14 carcinogenesis.</p> <p>15 BY MR. ZELLERS:</p> <p>16 Q. It lists 82 agents in Group 2A</p> <p>17 as being probably carcinogenic to humans; is</p> <p>18 that right?</p> <p>19 A. That's correct.</p> <p>20 Q. IARC is certainly willing to</p> <p>21 declare agents as either a known or probable</p> <p>22 carcinogen; is that right?</p> <p>23 A. That's correct.</p> <p>24 Q. There is only one agent in</p>	<p>Page 226</p> <p>1 MS. O'DELL: Object to the</p> <p>2 form.</p> <p>3 A. I think limited evidence also</p> <p>4 refers to just the number of studies that</p> <p>5 have been performed as well as the quality of</p> <p>6 the studies.</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. Well, based upon the evidence</p> <p>9 that is available, the studies that are</p> <p>10 available, a 2B designation by IARC means</p> <p>11 that IARC cannot rule out chance, bias or</p> <p>12 confounding with reasonable confidence,</p> <p>13 correct?</p> <p>14 MS. O'DELL: Objection, asked</p> <p>15 and answered.</p> <p>16 A. Not always the case.</p> <p>17 BY MR. ZELLERS:</p> <p>18 Q. That's part of the definition,</p> <p>19 isn't it?</p> <p>20 A. I don't believe it applies to</p> <p>21 every agent or every evaluation.</p> <p>22 Q. Well, I'll not take the time to</p> <p>23 go through the IARC definitions; if we at the</p> <p>24 end of the day have extra time, we'll go back</p>
<p>Page 227</p> <p>1 Group 4, probably not carcinogenic to humans,</p> <p>2 correct?</p> <p>3 A. Yes. I thought that number had</p> <p>4 gone up recently, but the date here is</p> <p>5 November 2018, so some may have been moved</p> <p>6 back into Group 3.</p> <p>7 Q. So out of the over 1,000 agents</p> <p>8 that IARC has reviewed, it's only placed one</p> <p>9 agent in the Group 4 category, probably not</p> <p>10 carcinogenic; is that right?</p> <p>11 A. That's correct.</p> <p>12 Q. There is no Group 5, not</p> <p>13 carcinogenic; is that right?</p> <p>14 A. That's correct.</p> <p>15 Q. With genital talc, IARC</p> <p>16 Group 2B designation -- well, strike that.</p> <p>17 Genital talc is listed as an</p> <p>18 IARC Group 2B designated substance; is that</p> <p>19 right?</p> <p>20 A. That's correct.</p> <p>21 Q. That's based on limited</p> <p>22 evidence in humans, which means that IARC</p> <p>23 cannot rule out chance, bias or confounding</p> <p>24 with reasonable confidence, correct?</p>	<p>Page 229</p> <p>1 and we'll take a look.</p> <p>2 What else is in the Class 2B,</p> <p>3 possibly carcinogenic. Ginkgo biloba, is</p> <p>4 that something you're aware of that's in that</p> <p>5 category?</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 A. That's a biological material.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. Pickled vegetables?</p> <p>11 A. That may be in Group 2B.</p> <p>12 Q. Occupational carpentry and</p> <p>13 joinery?</p> <p>14 MS. O'DELL: Objection to form.</p> <p>15 A. That's wood dust exposure.</p> <p>16 BY MR. ZELLERS:</p> <p>17 Q. Also 2B; is that right?</p> <p>18 A. Wood dust itself is Group 1.</p> <p>19 The occupation is Group 2B.</p> <p>20 Q. Let me ask you about some</p> <p>21 individual Bradford Hill criteria. On</p> <p>22 page 10 of your report, you state that you</p> <p>23 gave the most weight to strength of</p> <p>24 association, consistency and biologic</p>

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1 plausibility; is that right?
2 A. That's correct.
3 Q. How much weight did you give to
4 the other six factors?
5 A. Sufficient.
6 Q. Why did you put less weight on
7 those?
8 A. Because the strength of
9 association, the consistency of the evidence
10 and the biological plausibility of perineal
11 talc, talcum powder application as
12 responsible for the occurrence of ovarian
13 cancer was compelling.
14 Q. FDA focused on dose, correct?
15 A. Yes.
16 Q. You did not; is that right?
17 A. That's right.
18 Q. The first Bradford Hill factor
19 that you focused on was strength of
20 association.
21 What association does the
22 literature report between talc use and
23 ovarian cancer?
24 A. Overall, evaluating the

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1 been failed attempts, but they have been
2 attempts to estimate the quantity of powder
3 that you start with and the amount that
4 results in the application to the perineum by
5 using models and actually doing some
6 measurements and recording activities.
7 BY MR. ZELLERS:
8 Q. You did not do any modeling or
9 any assessment of the quantity of baby powder
10 that was involved with daily use; is that
11 right?
12 A. No, I relied on those others.
13 Q. When you say 30% increased
14 risk, that's a 1.3 odds ratio; is that right?
15 A. That's correct.
16 Q. And that comes largely from the
17 case-control studies, correct?
18 MS. O'DELL: Object to the
19 form.
20 A. Yes, but it's also consistent
21 with some of the information from the cohort
22 studies.
23 BY MR. ZELLERS:
24 Q. Epidemiologists consider a 1.3

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1 universe of research, epidemiologic research
2 that's been done on this, it shows an average
3 30% increase in ovarian cancer risk for those
4 who regularly apply talcum powder to the
5 perineum.
6 Q. Regular application of talcum
7 powder means what?
8 A. It -- I believe that it means
9 daily or thereabouts.
10 Q. In what form of application?
11 A. Talcum powder.
12 Q. In what amount?
13 A. Whatever is necessary or
14 desired by the user.
15 Q. Does that vary from woman to
16 woman?
17 A. It does.
18 Q. Did you make any attempt to
19 assess what regular use of talcum powder was?
20 MS. O'DELL: Object to the
21 form.
22 A. There have been a couple of
23 attempts to try to quantify what -- what that
24 means. I think for the most part they've

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1 odds ratio in a case-control study to be a
2 weak or modest association; is that right?
3 MS. O'DELL: Object to the
4 form.
5 A. That's correct.
6 BY MR. ZELLERS:
7 Q. Where here we're talking only
8 about statistical associations, not
9 causation, correct?
10 MS. O'DELL: Object to the
11 form.
12 A. Well, association eventually
13 becomes causation when the -- when the
14 evidence mounts to a point where it becomes
15 recognized by all of the players that this is
16 what's going on.
17 A 30% increase may be
18 classified by epidemiologists as weak or
19 modest, but if you look at the number of
20 women in this country who die each year from
21 this fatal disease, that represents about
22 3,000 lives that could potentially be saved
23 through prevention.
24 Q. There is not a --

<p>1 MS. BOCKUS: Excuse me, I need 2 to object as nonresponsive. 3 MR. ZELLERS: Yes, join. 4 BY MR. ZELLERS: 5 Q. There is not a consensus at 6 this time with respect to any causation 7 relating to genital talc and ovarian cancer, 8 is there? 9 MS. O'DELL: Objection to the 10 form. 11 A. I believe that that consensus 12 is building. 13 BY MR. ZELLERS: 14 Q. FDA -- that's not FDA's 15 position, correct? 16 MS. O'DELL: Object to the 17 form. 18 A. Not at the moment. 19 BY MR. ZELLERS: 20 Q. That's not the position of the 21 National Cancer Institute; is that right? 22 A. That's correct. 23 Q. That's not the position of the 24 CDC; is that correct?</p>	<p>Page 234</p> <p>1 epidemiologists are concerned, correct? 2 MS. O'DELL: Object to -- 3 object to the form. 4 A. It's an increased risk that 5 translates into human lives, so it depends on 6 your point of view. 7 MS. BOCKUS: Object to form -- 8 I mean, sorry, nonresponsive, move to 9 strike. 10 MR. ZELLERS: Join. 11 MS. O'DELL: Oppose. 12 DR. THOMPSON: Agreed. 13 BY MR. ZELLERS: 14 Q. The 1.3 relative risk that you 15 believe generally applies, that would relate 16 to epithelial cancers; is that right? 17 A. Yes. 18 Q. That's what you're limiting 19 your opinions to in this case, correct? 20 MS. O'DELL: Object to the 21 form. 22 A. Well, these opinions relate to 23 several of the cancers that have shown 24 increases in these background epidemiologic</p>
<p>1 A. That's correct. 2 Q. IARC does not refer to any 3 association between perineal talc use and 4 ovarian cancer as a strong association, does 5 it? 6 MS. O'DELL: Object to the 7 form. 8 A. It calls it a Group 2B 9 carcinogen, which is fairly significant. 10 BY MR. ZELLERS: 11 Q. Well, we discussed a few 12 minutes ago that if an agent is a Group 2B 13 carcinogen, that is based on limited evidence 14 in humans; is that right? 15 A. That's correct. 16 Q. All right. Your opinions on 17 strength of association, do they apply 18 equally to all forms of ovarian cancer? 19 A. No, they don't. These apply to 20 the epithelial ovarian cancer spectrum. 21 Q. Your opinions in terms of there 22 being a -- well, let me withdraw that. 23 We've agreed that 1.3 is not a 24 strong association, at least insofar as</p>	<p>Page 235</p> <p>1 studies, which include the epithelial ovarian 2 cancers, including the serous; the borderline 3 cancers are also showing increases in some of 4 the studies. So it's the group of those 5 cancers, yes. 6 BY MR. ZELLERS: 7 Q. The cohort studies, prospective 8 cohort studies, have not shown an association 9 between talc and ovarian cancer, correct? 10 MS. O'DELL: Object to the 11 form. 12 A. They have in some subtypes. 13 BY MR. ZELLERS: 14 Q. There was an initial 15 description with respect to the first Nurses' 16 study that was not supported in the update of 17 that study; is that correct? 18 A. The Nurses' Health Study? 19 Q. Yes. 20 A. Yes, that's correct. 21 Q. Let's look at a different 22 criteria, consistency. The literature does 23 not show a consistent association between 24 talc use and ovarian cancer, correct?</p>

<p>1 MS. O'DELL: Object to the 2 form. 3 A. I believe that, in fact, 4 research shows -- does show a consistent 5 pattern. 6 BY MR. ZELLERS: 7 Q. The cohort studies do not show 8 an association between talc use and ovarian 9 cancer as we just discussed, correct? 10 A. The basic cohort studies that 11 look at all of the subjects and all of the 12 cancers together typically do not rise to the 13 level of significance. 14 Q. The hospital-based case-control 15 studies collectively do not show an 16 association between talc use and ovarian 17 cancer, correct? 18 A. I sort of discount the 19 distinction between the hospital-based 20 studies and the community-based studies. I'm 21 not sure whether there are valid reasons to 22 consider those differently. 23 Q. We've discussed earlier that 24 you are not an epidemiologist; is that right?</p>	<p>Page 238</p> <p>1 ill patients in the community to healthy 2 people in the community, correct? 3 A. In some cases that might be 4 correct, but I'm not sure that's any -- in 5 any sort of world an advantage. 6 Q. Well, shouldn't there be 7 consistency if the Bradford Hill criteria is 8 to be -- well, strike that. 9 In applying the Bradford Hill 10 criteria of consistency, there should be 11 consistency across different types of 12 studies, cohort studies, hospital-based 13 case-control studies, and population-based 14 case-control studies, correct? 15 MS. O'DELL: Object to the 16 form. 17 A. That's correct. 18 BY MR. ZELLERS: 19 Q. Isn't the absence of an 20 association in the cohort studies especially 21 significant in that the study design for the 22 cohort studies reduces the likelihood of 23 recall bias? 24 A. There are many forms of bias</p> <p>Page 240</p>
<p>1 MS. O'DELL: Object to the 2 form, misstates his testimony. 3 A. I don't think I necessarily 4 agreed to that characterization because I 5 deal a lot with epidemiologic work. I'm a 6 faculty member in the Department of 7 Epidemiology at the University of Texas 8 School of Public Health, and some may 9 consider me an epidemiologist. 10 BY MR. ZELLERS: 11 Q. Do you consider yourself an 12 expert in epidemiology? 13 A. No. 14 Q. Do you agree -- well, do you 15 agree that hospital-based case-control 16 studies are less susceptible to selection 17 bias than population-based case-control 18 studies? 19 A. It depends on the methodology 20 that's used to recruit the study subjects. 21 Q. With hospital-based 22 case-controlled studies, you're more likely 23 to be comparing hospitalized patients to 24 hospitalized patients rather than comparing</p>	<p>Page 239</p> <p>1 that study designers need to consider in the 2 process of designing a study, and there are 3 even more types of bias that are discovered 4 after a study has begun. 5 You can fault case-control 6 studies for being particularly sensitive to 7 recall bias, but many of these authors who 8 perform these studies indicated that they 9 were well aware of that bias potential and 10 took measures to avoid it. 11 The same thing can be said 12 about cohort studies. They suffer from other 13 forms of bias, misclassification in 14 particular. They may also suffer from the 15 fact that they are extremely expensive, have 16 long duration, and require very large numbers 17 of subjects in order to carry them out and 18 are frequently underpowered and unable to 19 arrive at the conclusions that they seek for 20 that reason. 21 MR. ZELLERS: Move to strike as 22 nonresponsive. 23 BY MR. ZELLERS: 24 Q. Is it possible that recall bias</p> <p>Page 241</p>

1 explains the difference between the cohort 2 studies and the retrospective case-control 3 studies? 4 MS. O'DELL: Object to form, 5 asked and answered. 6 A. I don't believe that that is 7 the case. 8 BY MR. ZELLERS: 9 Q. Is it possible? 10 MS. O'DELL: Objection. 11 A. Theoretically it would be 12 possible. 13 BY MR. ZELLERS: 14 Q. Are you familiar with the 15 Berge -- Berge 2017 study? 16 A. Yes. 17 Q. Is that a study that you cite 18 and reviewed and rely on? 19 A. It was a meta-analysis. 20 Q. Is that a meta-analysis that 21 you cite, review and have relied upon? 22 A. Yes. 23 Q. Take a look, if you will, at 24 Exhibit 22.	Page 242 1 paragraph. Reading from the second full 2 paragraph, the authors discuss the fact that 3 the association between genital talc use and 4 risk of ovarian cancer is present in 5 case-control but not in cohort studies, can 6 be attributed to bias in the former type of 7 studies; is that right? 8 MS. O'DELL: Object to the 9 form. 10 A. That's what it says. 11 BY MR. ZELLERS: 12 Q. Then continuing down: 13 Information bias from retrospective 14 self-report of talc use is a possible 15 explanation for the association detected in 16 case-control studies. 17 Is that right? 18 A. That's what it says. 19 Q. What was your methodology for 20 discounting the effect of recall bias in the 21 population-based case-control studies? 22 A. The fact that several authors 23 discussed the possibility of recall bias and 24 incorporated methodology for avoiding recall
1 (Carson Deposition Exhibit 22 2 marked.) 3 THE WITNESS: Thank you. 4 MS. O'DELL: Thank you. 5 BY MR. ZELLERS: 6 Q. You're familiar with this 7 meta-analysis; is that right? 8 A. Yes. 9 Q. The authors conclude that 10 information bias from retrospective 11 self-report of talc use is a possible 12 explanation for the association detected in 13 case-control studies; is that right? 14 MS. O'DELL: I'm sorry, are you 15 reading from a certain page? 16 MR. ZELLERS: I am. 17 MS. O'DELL: Can you direct it 18 to us, please? 19 THE WITNESS: Could you tell us 20 where that is? 21 MR. ZELLERS: Sure. 22 BY MR. ZELLERS: 23 Q. Take a look if you will on 24 page 6, the right-hand column, third	Page 243 Page 245 1 bias, for example, placing parallel questions 2 that should be affected in the same way, and 3 still showed a positive result for talc and 4 ovarian cancer is one reason. 5 The other has to do with 6 consistency of the results, and although 7 you've stated that from these various 8 documents, including this quotation, that the 9 case-control studies showed positive 10 associations but the cohort studies did not, 11 I would -- I would refute that by saying that 12 all of the -- the vast majority of all of the 13 studies show a positive odds ratio or 14 relative risk, even if they don't rise to the 15 level of significance. 16 If these results were obtained 17 simply by chance, you would expect an equal 18 number of positive results and negative 19 results, but we don't have that here. We 20 have practically all positive results with 21 three or four outliers. 22 And so -- 23 Q. We looked at the Taher paper 24 early on in this deposition where Taher

1 concluded that 15 out of the 30 case-control 2 studies reported a statistically significant 3 association between genital talc use and 4 ovarian cancer, correct? 5 A. That's correct, but you're 6 not -- you're not talking about the other 15. 7 Q. The hospital-based case-control 8 studies collectively do not show a 9 statistically significant association between 10 talc use and ovarian cancer, correct? 11 MS. O'DELL: Object to the 12 form. 13 A. I don't know that that is the 14 case. 15 BY MR. ZELLERS: 16 Q. You don't know that it's not 17 the case; you'd have to go back and relook at 18 the studies, fair? 19 A. I'd have to look through here, 20 which I'm happy to do if you want me to, but 21 I don't believe that that's the case. 22 Q. In fact, the author, you cite 23 the Langseth paper, a 2008 paper, as 24 supportive of your position; is that right?	Page 246 1 page. 2 MS. O'DELL: Object to the 3 form. 4 BY MR. ZELLERS: 5 Q. Is that the conclusion of the 6 authors? 7 A. What I'm reading here is on 8 balance, the epidemiological evidence 9 suggests that the use of cosmetic talc in the 10 perineal area may be associated with ovarian 11 cancer risk. The mechanism of 12 carcinogenicity may be related to 13 inflammation. 14 Q. Take a look at the paragraph on 15 the right-hand side under Proposal to 16 Research Community. I'm looking at the 17 second page of the Langseth article. 18 Are you there? 19 A. Yes, I am. 20 Q. The authors state: The current 21 body of experimental and epidemiological 22 evidence is insufficient to establish a 23 causal association between perineal use of 24 talc and ovarian cancer risk.	Page 248
1 A. Yes. 2 Q. I'll mark that 3 Deposition Exhibit 23. 4 A. I think it was 2004, was it 5 not? 6 Q. Well, I'm going to hand it to 7 you and we can look at it together. 8 (Carson Deposition Exhibit 23 9 marked.) 10 A. Okay. 11 BY MR. ZELLERS: 12 Q. You're familiar with the 13 Langseth paper; is that right? 14 A. Yes. 15 (Comments off the stenographic 16 record.) 17 BY MR. ZELLERS: 18 Q. Langseth and the authors 19 concluded that the current body of 20 experimental and epidemiological evidence is 21 insufficient to establish a causal 22 association between perineal use of talc and 23 ovarian cancer risk; is that right? 24 And I'm looking at the second	Page 247 1 Is that right? 2 MS. O'DELL: Object to the 3 form. 4 A. That's what it says. 5 BY MR. ZELLERS: 6 Q. Experimental research is needed 7 to better characterize deposition, retention 8 and clearance of talc to evaluate the ovarian 9 carcinogenicity of talc. 10 Is that what the authors state? 11 A. Well, that's what it says, but 12 it says much more. In fact, the editors of 13 the journal, in the section on the next page 14 that is titled What This Study Adds, say: 15 Epidemiological evidence suggests that the 16 use of cosmetic talc in the perineal area may 17 be associated with ovarian cancer risk. The 18 IARC has classified this use of talc as 19 possibly carcinogenic to human beings, 20 Group 2B. The mechanism of carcinogenicity 21 may be related to inflammation. This paper 22 focused on the high degree of consistency in 23 the studies accomplished so far and what 24 should be the focus in future studies.	Page 249

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1 So I --

2 Q. And then the conclusion is what
3 I read, that: The current body of
4 experimental and epidemiological evidence is
5 insufficient to establish a causal
6 association between perineal use of talc and
7 ovarian cancer risk.

8 Correct?

9 MS. O'DELL: Object to the
10 form.

11 A. That is what it says, but this
12 was accepted in 2007, which was now 12 years
13 ago.

14 BY MR. ZELLERS:

15 Q. Let me ask you about the cohort
16 studies. They involved a much greater number
17 of women than the case-controlled studies; is
18 that right?

19 MS. O'DELL: Object to the
20 form.

21 A. Well, they did not involve more
22 cases, but they involved more women because
in order to do a cohort study, you have to
start with a huge group of people and wait

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1 doesn't happen.

2 Q. Is it your testimony that the
3 cohort studies relating to genital talc use
4 and ovarian cancer are spinning the roulette
5 wheel?

6 MS. O'DELL: Object to the
7 form.

8 A. In terms of the power of the
9 studies to detect a meaningful difference
10 among the subjects, yes.

11 BY MR. ZELLERS:

12 Q. That's your testimony as an
13 expert in this case; is that right?

14 A. It is my testimony that cohort
15 studies, including these, are chronic -- or
16 quite often underpowered simply because of
17 the expense associated with performing these
18 studies.

19 Q. What analysis did you do to
20 conclude that the cohort studies in this
21 area, the four cohort studies, are
22 underpowered?

23 A. Like I just mentioned to you, I
24 read the studies and looked at their

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1 for them to develop cancers, and then count
2 those cancers.

3 BY MR. ZELLERS:

4 Q. What was your methodology for
5 weighing the power of the cohort studies
6 versus the case-control studies?

7 A. The cohort studies, it wasn't
8 apparent in every research report exactly how
9 they had done their sample size calculations
10 and power determinations, but in many cases
11 the lack of arriving at conclusions was
simply due to an inability to detect an
13 effect in the cohort studies, not that they
14 detected that there was not an effect. And
15 that's unfortunately a disadvantage of an
underpowered study.

17 Q. Is it your testimony that the
18 cohort studies are underpowered?

19 A. I think by and large most
20 cohort studies are underpowered and --
21 because power calculations are based on
22 chance. Investigators are sort of spinning
the roulette wheel and hoping that the number
that they want comes up. In some cases that

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1 conclusions, and their conclusions were not
2 that the effect didn't exist, but they
3 couldn't detect it.

4 MR. ZELLERS: Let's go off the
5 record because we need to change our
6 tape.

7 THE VIDEOGRAPHER: We're off
8 the record at 3:06, end of Tape 3.
(Recess taken, 3:06 p.m. to
3:19 p.m.)

11 THE VIDEOGRAPHER: We're on the
12 record at 3:19, beginning of Tape 4.

13 BY MR. ZELLERS:

14 Q. Dr. Carson, you are not a
statistician, correct?

16 A. That's correct.

17 Q. You are not a biostatistician;
is that right?

19 A. That's right.

20 Q. Do you agree that some of the
case-control studies have shown statistically
significant findings and others have not?

23 A. I do agree that.

24 Q. If a study does not show a

<p>1 statistically significant association, it 2 could mean that no risk exists, as we've 3 discussed; is that right? 4 A. That's correct. 5 Q. What methodology did you use to 6 weigh the lack of statistical significance 7 across studies? 8 MS. O'DELL: Object to the 9 form. 10 A. Across all of the case-control 11 studies? 12 BY MR. ZELLERS: 13 Q. Yes. 14 A. I simply treated them as 15 isolated research designs that were done on 16 different populations in different places 17 with different considerations. They were not 18 necessarily comparable, like apples to apples 19 or oranges to oranges; they were very 20 different studies in most cases, and so I 21 felt it was important to allow their findings 22 to stand on their own. 23 Q. I want to talk to you about 24 dose-response. That's another of the</p>	<p>Page 254</p> <p>1 front of you? 2 A. I do. 3 I would also add that the 4 Penninkilampi meta-analysis also found a 5 dose-response. 6 Q. Do you mention Penninkilampi at 7 all in your report? 8 A. It's cited. 9 Q. In the body of your report? 10 A. I think it's in there 11 somewhere. 12 Q. You believe it is; is that 13 right? 14 A. I do. 15 Q. Well, I'll ask you a couple of 16 questions about it then. 17 Before I do, let's talk a 18 little bit more about your report. So go to 19 page 7. You state at the very top of that 20 page that it has been difficult to estimate 21 dose in order to evaluate the dose-response 22 relationship for ovarian cancer; is that 23 right? 24 A. That's correct.</p>
<p>1 Bradford Hill criteria; is that right? 2 A. That's correct. 3 Q. Which studies show a 4 dose-response, talc exposure and ovarian 5 cancer? 6 A. Let me see here. I'm looking 7 at my notes. The Harlow study from 1992 8 showed a dose-response, and the Cramer 2016 9 study showed a dose trend with strong odds 10 ratios for premenopausal women and hormone 11 therapy-treated women with greater than 12 24 years of exposure. 13 The Schildkraut study, also a 14 case-controlled study of 2016, showed a 15 dose-response. 16 Q. There are a number of studies 17 that did not show a dose-response; is that 18 right? 19 A. It's correct. They did not 20 necessarily show there was not a 21 dose-response. They just, as I was 22 mentioning before, were unable to detect a 23 dose-response. 24 Q. Do you have your report in</p>	<p>Page 255</p> <p>1 Q. You state that it also has been 2 difficult to exactly estimate the quantity of 3 talcum powder administration during personal 4 hygiene activities; is that right? 5 A. That's correct. 6 Q. Let's look at a couple of the 7 studies that you believe do, in fact, show a 8 dose-response. The Penninkilampi, that's a 9 meta-analysis, 2018; is that right? 10 A. That's correct. 11 Q. That study does not consider or 12 include the Gertic 2010 cohort study; is that 13 right? 14 A. I -- I'd have to look at the 15 table, but yes, that one may be left out. 16 Q. Well, that's a significant 17 study to leave out of an analysis, isn't it? 18 MS. O'DELL: Object to the 19 form. 20 THE WITNESS: I'm getting 21 there. 22 (Document review.) 23 THE WITNESS: Apologies, I have 24 binder block here.</p>

<p>1 MS. O'DELL: You need help?</p> <p>2 THE WITNESS: Okay.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. And I misspoke. I meant to</p> <p>5 refer to Gates, the updated Nurses' study.</p> <p>6 So Gates 2010.</p> <p>7 A. Yes, it appears that Gates is</p> <p>8 not included in the -- in the spectrum of</p> <p>9 studies considering; the Gertic study does</p> <p>10 appear.</p> <p>11 Q. Gates 2010 is an important</p> <p>12 cohort study in this area, would you agree?</p> <p>13 MS. O'DELL: Object to the</p> <p>14 form.</p> <p>15 A. It's important, but I think it</p> <p>16 may be considered one of the ones that</p> <p>17 suffered from power issues. It wasn't able</p> <p>18 to determine a relative risk in the</p> <p>19 population that it assessed.</p> <p>20 BY MR. ZELLERS:</p> <p>21 Q. There are a number of the</p> <p>22 case-control studies that did not determine a</p> <p>23 relative risk, at least of statistical</p> <p>24 significance, correct?</p>	<p>Page 258</p> <p>1 Q. This is my highlighted copy, so</p> <p>2 I'm sure it wasn't yours.</p> <p>3 A. I'm sorry.</p> <p>4 Q. That's all right. We'll --</p> <p>5 take your time.</p> <p>6 A. Here we are.</p> <p>7 Q. Got it, Exhibit 20?</p> <p>8 A. I think so.</p> <p>9 Q. Do you have the Cramer study in</p> <p>10 front of you?</p> <p>11 A. I do.</p> <p>12 Q. It's a retrospective</p> <p>13 case-control study published in 2016; is that</p> <p>14 right?</p> <p>15 A. That's correct.</p> <p>16 Q. If we look at the table of</p> <p>17 results on page 337, Table 1.</p> <p>18 Do you see that?</p> <p>19 A. Yes.</p> <p>20 Q. This table shows the risk of</p> <p>21 ovarian cancer for women who use talc, talcum</p> <p>22 powder, daily; is that right?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>
<p>1 A. Well, they determined odds</p> <p>2 ratios, which is the equivalent of relative</p> <p>3 risk for a case-control study.</p> <p>4 Q. And in a number of those</p> <p>5 case-control studies, at least 15 out of the</p> <p>6 30 relative risk was not -- or strike that --</p> <p>7 statistical significance was not achieved in</p> <p>8 the study; is that right?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. That's correct.</p> <p>12 BY MR. ZELLERS:</p> <p>13 Q. Let's look at the Cramer paper.</p> <p>14 We've talked about this earlier.</p> <p>15 A. Which one, the 2016?</p> <p>16 Q. Exhibit 20, yes, 2016.</p> <p>17 A. Okay.</p> <p>18 Q. This is another study that you</p> <p>19 cite as being supportive of your</p> <p>20 dose-response opinion; is that right?</p> <p>21 A. Yes.</p> <p>22 Q. Tell me when you have it.</p> <p>23 A. I think you may have picked up</p> <p>24 my copy or the copy that I was looking at.</p>	<p>Page 259</p> <p>1 A. It does.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. And it's four different periods</p> <p>4 of time; one year, one to five years, five to</p> <p>5 20 years and more than 20 years; is that</p> <p>6 right?</p> <p>7 A. That's correct.</p> <p>8 Q. There was only statistical</p> <p>9 significance found for the time period of one</p> <p>10 to five years of use and more than 20 years</p> <p>11 of use; is that right?</p> <p>12 A. For the first group, the -- for</p> <p>13 those who reported months year of use --</p> <p>14 months per year of use.</p> <p>15 Q. Well, for the first group,</p> <p>16 which was equivalent to one year of daily</p> <p>17 use, there was no statistical significance;</p> <p>18 is that right?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form.</p> <p>21 A. That -- well, the -- there was</p> <p>22 a positive odds ratio with a nonsignificant</p> <p>23 95% confidence interval.</p> <p>24 ///</p>

<p>1 BY MR. ZELLERS:</p> <p>2 Q. Meaning that if you look at</p> <p>3 this study, that it is certainly possible</p> <p>4 that because there is not statistical</p> <p>5 significance, there could be a finding of no</p> <p>6 risk, correct, no increased risk?</p> <p>7 A. That's a possibility.</p> <p>8 Q. Then if we go to the next</p> <p>9 period, we do show a dose-response for talcum</p> <p>10 powder use in the year -- years one to five;</p> <p>11 is that right?</p> <p>12 A. Well, one to five years of</p> <p>13 daily use, yes.</p> <p>14 Q. But then when we look at five</p> <p>15 to 20 years of daily use, there is not a</p> <p>16 statistically significant association; is</p> <p>17 that right?</p> <p>18 A. That's correct.</p> <p>19 Q. But then when we go to greater</p> <p>20 than 20 years, we do find a statistical</p> <p>21 association; is that right?</p> <p>22 A. That's correct.</p> <p>23 Q. If, in fact, there was a true</p> <p>24 dose-response relationship, you would expect</p>	<p>1 dirty, and it doesn't always work out quite</p> <p>2 that cleanly.</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. All right. Do you -- well, let</p> <p>5 me withdraw that.</p> <p>6 Confounding. You considered</p> <p>7 and talk about confounding as another one of</p> <p>8 the Bradford Hill criteria; is that right?</p> <p>9 MS. O'DELL: Object to the</p> <p>10 form.</p> <p>11 A. Confounding, by that you mean</p> <p>12 specificity?</p> <p>13 BY MR. ZELLERS:</p> <p>14 Q. Well, I thought your -- I</p> <p>15 thought you said in your methodology that you</p> <p>16 applied the Bradford Hill criteria.</p> <p>17 A. That's correct.</p> <p>18 Q. Is confound -- strike that.</p> <p>19 Is confounding an issue in</p> <p>20 interpreting epidemiologic studies?</p> <p>21 A. Yes.</p> <p>22 Q. Do you agree that there is</p> <p>23 confounding in these studies?</p> <p>24 A. I'm sure there's confounding in</p>
<p>1 to see that dose-response relationship in</p> <p>2 each of these groups; is that right?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 A. It's more like we see in the</p> <p>6 group directly below that, where you start</p> <p>7 out with an odds ratio which is not</p> <p>8 significant but positive, and then reach a</p> <p>9 significant odds ratio at one to five years</p> <p>10 of daily use and a higher amount of</p> <p>11 significance with five to 20 years of daily</p> <p>12 use, and still a significant odds ratio,</p> <p>13 which is about the same level, at greater</p> <p>14 than 20 years of daily use.</p> <p>15 BY MR. ZELLERS:</p> <p>16 Q. Is that a yes to my question,</p> <p>17 that if you do have a true dose-response</p> <p>18 relationship, you would expect to see that</p> <p>19 dose-response continue throughout each of the</p> <p>20 periods?</p> <p>21 MS. O'DELL: Object to the</p> <p>22 form.</p> <p>23 A. Well, it would be nice if you</p> <p>24 did that, but epidemiologic data is very</p>	<p>1 these studies.</p> <p>2 Q. You're familiar with that term,</p> <p>3 right?</p> <p>4 A. Yes.</p> <p>5 Q. That's where the presence of</p> <p>6 another association confuses the relationship</p> <p>7 between the exposure and the disease being</p> <p>8 studied; is that right?</p> <p>9 A. That's correct.</p> <p>10 Q. For example, if you're studying</p> <p>11 the association between coffee and pancreatic</p> <p>12 cancer, you need to be mindful of whether</p> <p>13 cigarette smoking is more common in coffee</p> <p>14 drinkers than the rest of the population,</p> <p>15 fair?</p> <p>16 A. Yes.</p> <p>17 Q. Coffee -- or strike that.</p> <p>18 Cigarette smoking could be a</p> <p>19 confounder in that situation?</p> <p>20 A. Possible.</p> <p>21 Q. Because if more coffee drinkers</p> <p>22 are smokers than non-coffee drinkers, an</p> <p>23 association between coffee drinking and</p> <p>24 pancreatic cancer might be due to the</p>

<p>1 smoking, not the coffee drinking; fair?</p> <p>2 A. That would be a good</p> <p>3 description of confounding.</p> <p>4 Q. Confounding can distort results</p> <p>5 in epidemiological studies; is that right?</p> <p>6 A. It can.</p> <p>7 Q. Do you agree that residual</p> <p>8 confounding is possible in every</p> <p>9 observational study?</p> <p>10 A. Yes, I think there's some form</p> <p>11 of confounding that's present in every</p> <p>12 observational study.</p> <p>13 Q. It's possible that unmeasured</p> <p>14 confounders may be present in every</p> <p>15 observational study; is that right?</p> <p>16 A. That's correct. Not just</p> <p>17 unmeasured confounders, but unrecognized</p> <p>18 confounders.</p> <p>19 Q. It's impossible to say that all</p> <p>20 known and unknown confounding factors have</p> <p>21 been controlled for in any given study; is</p> <p>22 that right?</p> <p>23 A. I also agree with that.</p> <p>24 Q. Many new factors possibly</p>	<p>Page 266</p> <p>1 not controlled for in any of the talc/ovarian</p> <p>2 cancer studies, were they?</p> <p>3 A. Not that I'm aware of.</p> <p>4 Q. Are you aware that studies that</p> <p>5 show a relationship between talc and ovarian</p> <p>6 cancer did not account for confounders?</p> <p>7 A. I think it's possible that many</p> <p>8 of those studies did not account for all</p> <p>9 potential confounders, but they made attempts</p> <p>10 to.</p> <p>11 Q. For example, Terry 2013, we</p> <p>12 talked about that earlier; is that right?</p> <p>13 A. Yes.</p> <p>14 Q. Terry 2013, that meta-analysis</p> <p>15 did not adjust for hormone replacement</p> <p>16 therapy usage, correct?</p> <p>17 A. Yes.</p> <p>18 Q. If hormone replacement therapy</p> <p>19 is a risk factor for ovarian cancer, then the</p> <p>20 Terry 2013 meta-analysis did not account for</p> <p>21 that potential confounding factor, correct?</p> <p>22 MS. O'DELL: Object to the</p> <p>23 form.</p> <p>24 A. Correct.</p>
<p>Page 267</p> <p>1 involved in ovarian cancer risk are just</p> <p>2 being published in the literature, correct?</p> <p>3 MS. O'DELL: Object to the</p> <p>4 form.</p> <p>5 A. I believe that is true.</p> <p>6 BY MR. ZELLERS:</p> <p>7 Q. For example, history of</p> <p>8 chlamydia infection, have you read about that</p> <p>9 possibly being involved in ovarian cancer</p> <p>10 risk?</p> <p>11 A. I haven't read that</p> <p>12 specifically. I was thinking more about the</p> <p>13 new information regarding genetic</p> <p>14 susceptibilities.</p> <p>15 Q. Also, weight gain during</p> <p>16 adolescence, is that another relatively new</p> <p>17 possible ovarian cancer risk factor?</p> <p>18 MS. O'DELL: Object to the</p> <p>19 form.</p> <p>20 A. It is, but obesity has been</p> <p>21 recognized as a cofactor for many years.</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q. History of chlamydia infection,</p> <p>24 weight gain during adolescence, those were</p>	<p>Page 269</p> <p>1 BY MR. ZELLERS:</p> <p>2 Q. You cannot say whether the odds</p> <p>3 ratio of the Terry 2013 study would have been</p> <p>4 lower if the authors had adjusted for hormone</p> <p>5 replacement therapy usage, correct?</p> <p>6 A. I cannot say that. Yes.</p> <p>7 Q. Recall bias. You're familiar</p> <p>8 with recall bias?</p> <p>9 A. I am.</p> <p>10 Q. That is also a concern in every</p> <p>11 retrospective study, correct?</p> <p>12 A. Yes.</p> <p>13 Q. Recall bias can distort a</p> <p>14 scientific evaluation of whether an exposure</p> <p>15 is actually related to a disease; is that</p> <p>16 right?</p> <p>17 A. Yes, it can.</p> <p>18 Q. For example, recall bias could</p> <p>19 distort results if women with ovarian cancer</p> <p>20 were more likely to remember their exposure</p> <p>21 to talc than women without ovarian cancer; is</p> <p>22 that right?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>

<p>1 A. That's correct.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. The effects of recall bias can</p> <p>4 be very real; is that right?</p> <p>5 MS. O'DELL: Object to the</p> <p>6 form.</p> <p>7 A. I'm not sure what you mean by</p> <p>8 very real.</p> <p>9 BY MR. ZELLERS:</p> <p>10 Q. Well, let's look at one of the</p> <p>11 studies that you cite. You cited the</p> <p>12 Schildkraut study in your report and you</p> <p>13 referred to it a bit earlier as supporting</p> <p>14 dose-response; is that right?</p> <p>15 A. Yes.</p> <p>16 Q. That's a study by Schildkraut</p> <p>17 and others titled Association Between Body</p> <p>18 Powder Use and Ovarian Cancer, the</p> <p>19 African-American Cancer Epidemiologic -- or</p> <p>20 Epidemiology Study.</p> <p>21 Is that right?</p> <p>22 A. Yes.</p> <p>23 Q. I've got it here for you.</p> <p>24 A. Okay.</p>	<p>Page 270</p> <p>1 publicity from lawsuits might influence the</p> <p>2 participants' recall of prior body powder</p> <p>3 use; is that right?</p> <p>4 A. This was a recent study, so</p> <p>5 that was more likely.</p> <p>6 Q. If you look on page 2,</p> <p>7 right-hand side, last paragraph that starts</p> <p>8 "Covariates include."</p> <p>9 Do you see that?</p> <p>10 A. Yes.</p> <p>11 Q. And I'm reading about</p> <p>12 two-thirds of the way down: Two class action</p> <p>13 lawsuits were filed in 2014 concerning</p> <p>14 possible carcinogenic effects of body powder</p> <p>15 which may have influenced recall of use;</p> <p>16 therefore, year of interview 2014 or later,</p> <p>17 yes/no, was concluded as a covariate in the</p> <p>18 logistic regression models.</p> <p>19 Is that correct?</p> <p>20 A. That's correct.</p> <p>21 Q. So go to page 4, Table 2. This</p> <p>22 is the adjusted odds ratio for the</p> <p>23 associations between mode, frequency and</p> <p>24 duration of body powder use in ovarian</p>
<p>1 (Carson Deposition Exhibit 24</p> <p>2 marked.)</p> <p>3 BY MR. ZELLERS:</p> <p>4 Q. Deposition Exhibit 24 is the</p> <p>5 Schildkraut study, 2016, correct?</p> <p>6 (Pause.)</p> <p>7 BY MR. ZELLERS:</p> <p>8 Q. Did you say correct?</p> <p>9 A. I think I did. I'm sorry.</p> <p>10 Q. That's all right. I may have</p> <p>11 missed it.</p> <p>12 Exhibit 24 is the Schildkraut</p> <p>13 2016 study; is that right?</p> <p>14 A. Yes.</p> <p>15 Q. This is one of the studies that</p> <p>16 you cite to and that you relied on in forming</p> <p>17 your opinions; is that right?</p> <p>18 A. Yes.</p> <p>19 Q. The study looked at, among</p> <p>20 other things, what impact, if any, lawsuit</p> <p>21 filings in 2014 had on whether women recalled</p> <p>22 using talc in the past, correct?</p> <p>23 A. I believe so.</p> <p>24 Q. The authors thought that the</p>	<p>Page 271</p> <p>1 cancer; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. The second column shows the</p> <p>4 number of cases, and that would be women with</p> <p>5 ovarian cancer; is that right?</p> <p>6 A. That's correct.</p> <p>7 Q. The third column shows the</p> <p>8 controls; that's the women who do not have</p> <p>9 ovarian cancer, correct?</p> <p>10 A. Yes.</p> <p>11 Q. Looking at this data before</p> <p>12 2014, before the lawsuits, the percentage of</p> <p>13 controls, meaning women without ovarian</p> <p>14 cancer, said they used talc on their genitals</p> <p>15 was 34%; is that right?</p> <p>16 So those are women who were</p> <p>17 interviewed before 2014.</p> <p>18 A. Yes. Any genital use controls,</p> <p>19 34%.</p> <p>20 Q. And the controls, again, are</p> <p>21 women without ovarian cancer.</p> <p>22 A. That's correct.</p> <p>23 Q. The percentage of cases,</p> <p>24 meaning women with ovarian cancer, that were</p>

<p>1 interviewed before 2014 that said they used 2 talc on their genitals was 36.5%; is that 3 right? 4 A. That's correct. 5 Q. So roughly the same reporting 6 of genital talc use between women with and 7 without ovarian cancer occurred for those 8 women interviewed before the lawsuits were 9 filed; is that right? 10 A. That's correct. 11 Q. Then look at what happened 12 after the lawsuits were filed in 2014. For 13 women interviewed after 2014, the percent of 14 women without ovarian cancer that said they 15 used talc on their genitals was 34.4%; is 16 that right? 17 A. That's correct. 18 Q. So based on this data, the 19 lawsuits had essentially no effect on how 20 many of the women without ovarian cancer, the 21 controls, remembered or recalled using baby 22 powder; is that right? 23 A. Well, the percentage is the 24 same in both cases.</p>	<p>Page 274</p> <p>1 BY MR. ZELLERS: 2 Q. In this study, lawsuit filings 3 appears to have affected how many women with 4 ovarian cancer remembered using talc on their 5 genitals but basically had no effect on the 6 memory of women without ovarian cancer; is 7 that right? 8 MS. O'DELL: Object to the 9 form. 10 A. You can't say that this is -- 11 this demonstrates recall bias. It could. 12 BY MR. ZELLERS: 13 Q. These findings could be an 14 example of the potential effect of recall 15 bias; is that right? 16 MS. O'DELL: Object to the 17 form. 18 A. That is correct. 19 BY MR. ZELLERS: 20 Q. So pre-2014 there was an odds 21 ratio of 1.19 with the confidence interval 22 ranging from .87 to -- strike that -- 23 from .87 to 1.63, so there is not statistical 24 significance pre-2014; is that right?</p>
<p>1 Q. It went from 34% to 34.4%; is 2 that right? 3 A. That's correct. 4 Q. For women with ovarian cancer, 5 before the lawsuits were filed, 36.5% of them 6 said they recalled using baby powder; is that 7 right? 8 A. That's right. 9 Q. But after the lawsuits were 10 filed, the percent of women with ovarian 11 cancer who said they used baby powder went up 12 to 51.5%; is that right? 13 A. That is also correct. 14 Q. Is that a significant increase 15 from 36.5%? 16 A. I don't know, but it seems like 17 it might be. 18 Q. So after the lawsuits were 19 filed, the percent of women with ovarian 20 cancer who said they used baby powder jumped 21 significantly; is that right? 22 MS. O'DELL: Object to the 23 form. 24 A. Well, that's -- that is true.</p>	<p>Page 275</p> <p>1 A. Probably not. 2 Q. If the study had been 3 terminated as of 2014, prior to the lawsuits 4 being filed, then the results of the study 5 would have been that genital talc use was not 6 statistically significantly associated with 7 an increased risk of ovarian cancer; is that 8 right? 9 MS. O'DELL: Object to the 10 form. 11 A. Yes. 12 BY MR. ZELLERS: 13 Q. Did you make an attempt to 14 account for this potential recall bias in 15 weighing the Schildkraut study? 16 A. The authors did that for me by 17 including the period of the interview as a 18 cofactor in the logistic regression models. 19 It accounts for this difference that you see 20 on the table. 21 Q. You do agree there was no 22 statistically significant finding of an odds 23 ratio prior to 2014, the data collected 24 through that time; is that right?</p>

<p>1 A. In the -- in the data collected 2 on those -- let me see here. In the data 3 collected on those 351 cases and 4 corresponding controls, there was not a 5 significant odds ratio.</p> <p>6 Q. I want to go back and ask you a 7 few questions about some of the things I had 8 talked to you before about.</p> <p>9 In terms of this chatter about 10 IARC, who has told you this?</p> <p>11 A. There are a number of 12 environmental websites and -- that also 13 operate on social media that discuss this 14 kind of thing.</p> <p>15 Q. So there's social media 16 websites that have talked about at least the 17 possibility of IARC revisiting the issue?</p> <p>18 A. Yes, among many other things.</p> <p>19 Q. I asked you earlier about 20 cornstarch, and you believe that cornstarch 21 is rapidly cleared from the body, including 22 the ovaries; is that right?</p> <p>23 MS. O'DELL: Object to the 24 form.</p>	<p>Page 278</p> <p>1 factors -- or latency periods for a number of 2 different types of cancers and tumors based 3 on the incidence data and what is known about 4 the natural progression of those tumors over 5 time.</p> <p>6 I can't recall at the moment 7 exactly where I determined the latency period 8 for ovarian cancer to be between 20 and 9 40 years.</p> <p>10 We do have a paper that's 11 referenced here that discusses the 12 determination of latency periods and includes 13 ovarian cancer as one of the tumors that it 14 determines a latency period for, and it uses 15 a mathematical formula with various factors 16 plugged into it to calculate that.</p> <p>17 In that particular article, the 18 latency factor -- period was very long. I 19 think it was 44 years on the average.</p> <p>20 Q. You do not have personal 21 expertise in terms of the latency period for 22 ovarian cancer, correct?</p> <p>23 A. I have -- I've calculated 24 latency periods as an exercise when I was in</p>
<p>1 A. Yes.</p> <p>2 BY MR. ZELLERS:</p> <p>3 Q. What is the mechanism by which 4 you believe that cornstarch is rapidly 5 cleared from the body, including the ovaries?</p> <p>6 A. It's primarily composed of 7 carbohydrate with a small amount of 8 structural material, probably cellulose, and 9 those materials are broken down in body 10 fluids fairly rapidly and dissolved and 11 become part of the general milieu of the 12 body.</p> <p>13 Q. Does cornstarch create 14 inflammation in the body?</p> <p>15 A. Yes.</p> <p>16 Q. You testified that the latency 17 period for ovarian cancer is between 20 and 18 40 years; is that right?</p> <p>19 A. Roughly, yes.</p> <p>20 Q. What is the basis for you 21 saying that?</p> <p>22 A. There are a number of factors 23 that influence that, but there are 24 organizations that have determined latency</p>	<p>Page 279</p> <p>1 graduate school, but that's not something I 2 normally do. I usually defer to the -- those 3 who have published latency periods for that 4 information.</p> <p>5 Q. You are recalling that at least 6 in some of the study or studies that you've 7 reviewed that the latency period for ovarian 8 cancer is 20 to 40 years, correct?</p> <p>9 A. Yes.</p> <p>10 Q. Are you able to tell us which 11 study or studies you're relying on for that 12 information?</p> <p>13 A. I'd have to go through my list 14 to find it. Do you mind if I take a moment 15 to do that?</p> <p>16 Q. Define "a moment."</p> <p>17 A. Well, however long it takes me 18 to find it in that list, but --</p> <p>19 Q. Let me see if I can shortcut 20 it.</p> <p>21 Do you believe that the latency 22 period for ovarian cancer is something you've 23 written out in one of your handwritten notes?</p> <p>24 A. I don't believe so.</p>

<p>1 Q. It would be -- where would it 2 be? 3 MS. O'DELL: If you need a 4 moment to review either your report or 5 your materials list, you know -- 6 THE WITNESS: I don't believe 7 that particular piece of information 8 is in my report, but it's -- I think I 9 could come up with it fairly quickly 10 if I -- 11 BY MR. ZELLERS: 12 Q. All right. Go ahead. Find for 13 us the study or studies you're relying on for 14 the latency period of ovarian cancer. 15 A. Okay. If I'm lucky, I may hit 16 on it here. 17 (Document review.) 18 A. It's the Diana Nadler and Igor 19 Zurbenko paper Estimating Cancer Latency 20 Times Using the Weibull Model. 21 BY MR. ZELLERS: 22 Q. You're looking at Exhibit 4, 23 your literature list; is that right? 24 A. Yes.</p>	<p>Page 282</p> <p>1 MS. BOCKUS: If you want to 2 pass me your microphone, I think I can 3 stay here. I'm not going to pass him 4 that many exhibits. 5 MR. ZELLERS: I'm happy to help 6 you. 7 MS. BOCKUS: Thank you. 8 EXAMINATION 9 BY MS. BOCKUS: 10 Q. Dr. Carson, my name is Jane 11 Bockus. I'm not certain I actually 12 introduced myself to you this morning, but I 13 represent Imerys in this litigation. 14 Do you understand that? 15 A. I do. 16 Q. Before Mr. Abney contacted you 17 about preparing a report that would explain 18 the relationship between regular perineal use 19 of talc based on personal hygiene products 20 and subsequent development of ovarian cancer, 21 is that anything that you had researched 22 before that date? 23 MS. O'DELL: Object to the 24 form.</p> <p>Page 284</p>
<p>1 Q. What page of Exhibit 4 are you 2 looking at? 3 A. Page 17 in the Ns. 4 Q. Are you finished? 5 A. There may be others in the 6 list, but you asked me to cite one. You want 7 me to continue looking? 8 Q. No, I -- that is sufficient for 9 my purposes. Thank you. 10 Dr. Carson, there have been 11 some studies where talc particles had been 12 observed or reported in the ovaries of women 13 who have had perineal talc use; is that 14 right? 15 A. Yes. 16 Q. Heller was one of the studies 17 that we talked about, correct? 18 A. Correct. 19 Q. In those studies, there has not 20 been inflammation noted; is that right? 21 A. No, there -- that's not been an 22 important finding. 23 MR. ZELLERS: I have no further 24 questions for you.</p>	<p>Page 283</p> <p>1 A. I don't think Mr. Abney -- 2 well, he may have been that detailed in our 3 discussion. But in response to your 4 question, that's not a specific question I 5 had researched in the past, although I had 6 researched related kinds of issues. 7 BY MS. BOCKUS: 8 Q. So would it be fair to say that 9 the opinions contained in your report are all 10 opinions that you have come to as a result of 11 doing the research at the request of 12 Mr. Abney and others in the plaintiffs' 13 lawyer group? 14 MS. O'DELL: Object to the 15 form. 16 A. Yes. 17 BY MS. BOCKUS: 18 Q. Okay. And I'm going to 19 apologize right now. I'll be jumping around 20 because most of my outline has already been 21 covered, so let me just get you to look at 22 your report, if I could, and I'm going to ask 23 you some questions about it. 24 Turn to page 4, and</p> <p>Page 285</p>

<p>1 paragraph (b), the first sentence reads: 2 Numerous studies have examined the 3 cancer-causing characteristics of talc. 4 Do you see that? 5 A. Yes. 6 Q. And you identified Wilde as 7 your source for that statement, correct? 8 A. That is correct. 9 Q. Isn't it correct that the Wild 10 study actually exonerated talc as having 11 cancer-causing characteristics? 12 A. That was a conclusion of the 13 author, but the reason it's cited there is 14 because that's an example of the 15 investigation of the relationship. 16 Q. Okay. But in that study, 17 they -- he concluded that talc alone did not 18 cause cancer, correct? 19 A. As I recall, that was the 20 general conclusion, yes. 21 Q. Okay. Then in the next couple 22 of sentences, you say that talc has caused 23 cancer when implanted in various tissues and 24 under the skin in laboratory animals. It</p>	<p>1 A. No. 2 Q. And then going on, you talk 3 about the fact that there in that same 4 paragraph, if you go down, you talk about 5 IARC and the fact that IARC concluded that 6 talcum powder use by women for feminine 7 hygiene is a possible human carcinogen; 8 that's not a classification of talc as a 9 carcinogen, correct? 10 MS. O'DELL: Object to the 11 form. 12 A. It is within the spectrum of 13 carcinogens. 14 BY MS. BOCKUS: 15 Q. It's possible. 16 A. That's correct. 17 Q. And then you say that -- 18 meaning that there is insufficient evidence 19 of carcinogenesis in humans, but strong 20 evidence in other mammalian species. 21 Can you tell me where in IARC 22 it says that there is strong evidence that 23 talc causes ovarian cancer in other mammalian 24 species?</p>
<p>1 causes inflammation and fibrotic reaction, 2 including the chemotaxis of inflammatory 3 immune cells and accelerated growth and 4 division of cells in the involved tissue. 5 And you cite Okada 2007 for 6 that proposition; is that correct? 7 A. That's correct. 8 Q. But Okada wasn't even looking 9 at talc, was it? 10 A. Let me see here. Okada was 11 looking at inflammation as -- as the endpoint 12 in the various components of inflammation 13 which I talked about here, the chemotaxis of 14 inflammatory immune cells, accelerated growth 15 division in the involved tissues. 16 Q. But what you say is that talc 17 causes. When you say "it," you're referring 18 to talc, correct? It causes inflammation and 19 fibrotic reaction; isn't that what you're 20 saying in this sentence? 21 A. It is talc, yes. 22 Q. Okay. And yet, Okada, the 23 study that you cite for that proposition, 24 doesn't look at talc at all, does it?</p>	<p>1 A. I think the issue is not 2 specifically ovarian cancer; the issue is 3 cancer. And that's the point of view of 4 IARC, and that's what's alluded to here. 5 Q. So this is the one exhibit I'm 6 going to hand you, if I can get that one 7 marked by my assistant. 8 MR. ZELLERS: Exhibit 25. 9 (Carson Deposition Exhibit 25 10 marked.) 11 MS. O'DELL: This is a page out 12 of the monograph? 13 MS. BOCKUS: Yes. 14 MS. O'DELL: Are you going to 15 identify it? 16 MS. BOCKUS: And he can look it 17 up in his whole monograph. I just 18 pulled the page for simplicity. 19 MS. O'DELL: So feel free to do 20 that, Doctor. 21 MS. BOCKUS: Yes, page 412. 22 BY MS. BOCKUS: 23 Q. So looking at Exhibit 25, this 24 is a page from the IARC monograph where it</p>

<p>1 talks about the data -- the evidence that 2 they have and the evidence that they 3 reviewed. 4 Do you see that? 5 A. That's correct. 6 Q. And what they actually state 7 with regard to experimental evidence is that 8 there is limited evidence in experimental 9 animals for the carcinogenicity of talc not 10 containing asbestos or asbestiform fibers. 11 Correct? 12 MS. O'DELL: Object to the 13 form. 14 BY MS. BOCKUS: 15 Q. Did I read it incorrectly? 16 A. No, I just lost you for a 17 moment. 18 Q. It's one sentence. Go ahead 19 and take your time and read it. 20 A. Yes, I agree with that. They 21 found that inhaled talc, which does not 22 contain asbestos or asbestiform fibers, is 23 Group 3. 24 Q. That wasn't my question. I'm</p>	<p>Page 290</p> <p>1 black, titanium dioxide and talc. 2 So regarding talc, the overall 3 point of view here is whether or not it 4 produces cancer, not just ovarian cancer, not 5 just lung cancer, but any cancer. 6 And so I'm not sure that that 7 responds to your question. 8 BY MS. BOCKUS: 9 Q. No. My question was: You 10 state in your report that IARC found strong 11 evidence in animals, and I want to know where 12 you believe that statement occurs in the IARC 13 monograph, or do you know? 14 MS. O'DELL: And if you need a 15 minute to look, feel free to do that. 16 A. Well, I can say that it might 17 take me a while to look for it, but I can say 18 that that's the basic definition of Group 2B, 19 is limited evidence in humans and compelling 20 evidence in animals or other -- 21 BY MS. BOCKUS: 22 Q. Tell me where you're looking at 23 that definition of 2B. 24 A. Let me see here.</p>
<p>1 talking about experimental animals because 2 that's what -- you state in your report that 3 IARC found strong evidence in animals, and 4 yet the part of IARC that I know of where 5 they're addressing the animal data with 6 regard to talc is what I handed you in 7 Section 6.2, and it states there's limited 8 evidence, correct? 9 MS. O'DELL: Objection. 10 A. It states that there's limited 11 evidence -- I need to find this section in 12 the monograph. Just bear with me for a 13 moment. It's page 412? 14 (Document review.) 15 A. Okay. I seem to be missing 16 that part of the monograph. 17 MS. O'DELL: Do you have the 93 18 monograph? 19 THE WITNESS: Where's the -- 20 this is 100C, and this is 93. Okay. 21 Here it is. All right. Okay. 22 A. Okay. The entire monograph is 23 designed to evaluate carcinogenic risk, and 24 it looks at three different species, carbon</p>	<p>Page 291</p> <p>1 Q. We earlier marked the... 2 Exhibit 21, I think. 3 A. Well, I have this other 4 exhibit, which is the preamble from another 5 situation; it's Exhibit P-346, and... 6 Q. Well, let me just ask a 7 different question, rather than looking at 8 the preamble. 9 A. All right. 10 Q. Because that's kind of 11 overarching. 12 A. It is. 13 Q. To know what IARC found with 14 regard to talc and the evidence in animal 15 models, wouldn't it be more appropriate to 16 look at what they actually said about talc in 17 the animal studies? 18 A. Yes. 19 MS. O'DELL: Objection, form. 20 A. I would agree that that's the 21 case. 22 BY MS. BOCKUS: 23 Q. And to your knowledge, nowhere 24 did they find strong evidence of</p>

<p>1 cancer-causing potential of talc in animal 2 studies, correct? 3 MS. O'DELL: Objection to form. 4 A. Well -- well, it says on that 5 page there's limited evidence in experimental 6 animals, so I'll agree that at least in this 7 location it does not say strong evidence. 8 BY MS. BOCKUS: 9 Q. And without going through the 10 entire monograph, you don't know where that 11 language came from, is that fair, that you 12 used in your report? 13 MS. O'DELL: Object. Excuse 14 me. Object to the form. I think he 15 was pointing -- directing you to the 16 preamble and you withdrew your 17 question, but -- 18 MS. BOCKUS: Well, let me just 19 ask a qualifying question. 20 BY MS. BOCKUS: 21 Q. Does the preamble in any way 22 address their findings with regards to talc? 23 A. No, the preamble addresses the 24 methodology that's used by the IARC agency in</p>	<p>Page 294</p> <p>1 misstates the evidence. 2 A. I believe that was their 3 assumption. 4 BY MS. BOCKUS: 5 Q. Okay. The studies that you 6 reference in support of the notion that 7 asbestos in -- that may or may not exist in 8 body powder contributes to cause ovarian 9 cancer, none of the studies that you cite to 10 have referenced an application of a product 11 to the perineum of the women and girls study, 12 correct? 13 MS. O'DELL: Object to the 14 form. 15 THE WITNESS: I have a -- I 16 apologize greatly, but I lost the 17 track. Could you repeat that 18 question. 19 MS. BOCKUS: That's totally 20 understandable because it was a little 21 bit convoluted. 22 MS. O'DELL: Do you mind if we 23 get the realtime running again? We're 24 just off track here.</p> <p>Page 296</p>
<p>1 addressing all the substances that they 2 evaluate. 3 Q. Okay. 4 A. And that's usually where I pull 5 things like that. 6 MS. O'DELL: Are you finished, 7 Doctor? 8 THE WITNESS: Unless I'm going 9 to continue to search for this. 10 BY MS. BOCKUS: 11 Q. I don't need for you to look in 12 the preamble, because I'm really only 13 interested in their findings as to talc, not 14 their overarching methodology, that sort of 15 thing. 16 A. Okay. But it's important to 17 point out that this particular monograph is 18 an evaluation of the carcinogenicity of talc 19 that does not contain asbestos or asbestiform 20 fibers, so -- 21 Q. Correct. Which was, from their 22 view, the talc that was included in all of 23 the studies that they reviewed, correct? 24 MS. O'DELL: Objection,</p>	<p>Page 295</p> <p>1 MS. BOCKUS: That's okay. 2 BY MS. BOCKUS: 3 Q. I'm looking on page 5. Do you 4 see on page 5 of your report, sir, 5 paragraph (c)? 6 A. Yes. 7 Q. And there you cite one, two, 8 three, four, five, six, seven, eight, nine, 9 10, 11, 12 studies, correct? 10 A. Yes. 11 Q. Do you speak Italian? 12 A. I can read it pretty well. 13 Q. Is that what you did for the 14 Bertolotti study? 15 A. The Bertolotti study. Yes, I 16 read most of it. I may have kibitzed with 17 some of my colleagues about the meaning of a 18 few words. 19 Q. At any rate, all of these 20 studies have to do with heavy occupational 21 exposure to asbestos, correct? 22 MS. O'DELL: Object to the 23 form. 24 A. Yes.</p> <p>Page 297</p>

<p>1 BY MS. BOCKUS: 2 Q. And you don't have any 3 information how the dose of asbestos to which 4 these women were exposed during their heavy 5 occupational exposure compares to any 6 exposure to asbestos from the use of body 7 powder, correct? 8 A. Well, I think these were not 9 all occupational exposures, but I do not have 10 information regarding things like the route 11 of exposure, no. 12 Q. Do you have any information 13 regarding the dose? 14 A. No, I don't. 15 Q. Do you have any information 16 that would compare the dose of asbestos to 17 which the women in these studies were 18 exposed -- 19 A. Well, in some of the studies -- 20 Q. Wait, I haven't finished my 21 question. 22 A. Sorry. 23 Q. -- to any alleged dose of 24 asbestos in body powder?</p>	<p>Page 298</p> <p>1 microenvironment, and based on what we know 2 about the mechanism of action of talc as well 3 and even asbestos, they're all similar, and 4 for that reason would be expected to be 5 additive. 6 Q. But the study hasn't been done 7 even in a petri dish, has it? 8 MS. O'DELL: Object to the 9 form. 10 A. I don't know if there's 11 something in progress or not, but that's the 12 kind of study that is currently being looked 13 at. Combined exposures is the -- sort of the 14 hallmark of research these days in 15 toxicology. 16 BY MS. BOCKUS: 17 Q. Do you know of anyone who's 18 looking at that question? 19 A. I don't. 20 Q. Okay. Have any of the heavy 21 metals that you have identified been 22 identified as carcinogenic to the ovary by 23 IARC? 24 A. No.</p> <p>Page 300</p>
<p>1 Can you make any comparison 2 whatsoever to the amount of asbestos to which 3 these women were exposed to any exposure by 4 any woman who has used a Johnson & Johnson 5 body powder? 6 MS. O'DELL: Object to the 7 form. 8 A. I don't think I'm able to make 9 that kind of comparison. 10 BY MS. BOCKUS: 11 Q. Okay. There are ways to study 12 whether two toxins combined increase a risk 13 more than exposure to a single toxin, whether 14 it -- whether one offsets the risk of one of 15 the toxins or whether you add them together, 16 even multiply them together, right? 17 A. Yes. 18 Q. Has any such study ever been 19 done with regard to talc and the heavy metals 20 that you identify in your report? 21 A. Not specifically a study to 22 look at the combined contribution, but we 23 know a lot about the mechanism of action of 24 the metals in particular in the</p>	<p>Page 299</p> <p>1 Q. I want you to turn to page 7 2 now, if you would, please, on other evidence. 3 And you've talked about this paragraph a fair 4 amount already, and I don't want to repeat 5 any of the prior questions. 6 But I want to ask you about the 7 statement in that first sentence, where you 8 say that transport of talc-containing 9 materials from the perineum to the upper 10 reproductive tract and body cavities has been 11 shown to occur with startling regularity. 12 And I want to stop right there. 13 If I recall your testimony 14 correctly, none of these studies even look at 15 the transport of talc-containing materials 16 from the perineum to the upper reproductive 17 tract; isn't that correct? 18 MS. O'DELL: Object to the 19 form. 20 A. Well, it is true that most of 21 the research that's been done in this area 22 has been done on materials that have been 23 instilled into the vagina or the posterior 24 fornix, but I think and it's my opinion that</p> <p>Page 301</p>

1 application to the perineum is equivalent to 2 that. 3 Q. Do you have an opinion as to 4 what percentage of the talcum powder applied 5 in a daily dusting to the perineum makes its 6 way to the vagina? 7 A. No, I don't know. 8 Q. Do you have an opinion as to 9 what percentage of the talc that, in your 10 opinion, would make its way to the vagina 11 would actually make its way to the cervix? 12 A. I don't know that either. 13 Q. And out of the talc that makes 14 its way to the cervix, what percentage makes 15 it past the cervix into the uterus? 16 A. That, I don't know either. 17 Q. Do you have any reason to 18 believe that talc would migrate with more 19 frequency or rapidity than sperm? 20 MS. O'DELL: Objection to form. 21 A. No, I don't have reason to 22 believe that would be the case. 23 BY MS. BOCKUS: 24 Q. Would you agree, in fact, that	Page 302 1 those studies that you list here done in 2 women who were standing up? 3 A. The studies that I list in 4 other evidence? 5 Q. Yes. 6 A. I think not. 7 Q. In fact, were any of them done 8 in women who were inclined with their head 9 elevated over their hips? 10 A. No. 11 Q. So my question is: Where do 12 you get the term "startling regularity" with 13 regard to the transport of talc from outside 14 a woman's body to the upper reproductive 15 tract? 16 MS. O'DELL: Object to the 17 form. 18 A. The propensity of evidence of 19 rapid transport of particulate material 20 regarding -- regardless of its composition. 21 BY MS. BOCKUS: 22 Q. Particulate material inserted 23 well into a woman's vagina whose hips are 24 above her head, correct?	Page 303 1 it is unlikely that talc, an inert particle, 2 would travel as quickly or in the same 3 percentages as sperm through the reproductive 4 tract? 5 MS. O'DELL: Object to the 6 form. 7 A. I think the transport time is 8 roughly the same for any particulate matter, 9 including sperm. 10 BY MS. BOCKUS: 11 Q. Do you have any studies to 12 support that opinion? 13 A. Well, we know -- we know the -- 14 we know the velocity of motile sperm; it's 15 very slow. And we have studies that have 16 shown the progression of particles through 17 the fallopian tubes at at least that fast a 18 rate, possibly faster. 19 And so the motility of sperm is 20 slower than the rate at which it passes 21 through the female reproductive system, so 22 there are obviously other mechanisms at play 23 other than sperm motility. 24 Q. To your knowledge, were any of	Page 304 1 MS. O'DELL: Objection to form. 2 A. Well, we have other studies 3 too. We have the powdered glove examination 4 studies, things of that nature, that are a 5 little bit different. 6 BY MS. BOCKUS: 7 Q. And you believe they support 8 your conclusion that talc is transported from 9 the perineum to the upper reproductive tract 10 with startling regularity? 11 A. I think that's a valid 12 conclusion supported by the evidence, yes. 13 Q. I'm turning to page 8 now, and 14 the number that you have here -- and you've 15 repeated it a couple of times today -- about 16 your opinion that the elimination of talc as 17 a risk could result in over 3,000 lives saved 18 in the U.S. each year. 19 How did you come to that 20 conclusion? 21 A. Well, I'm referring to talcum 22 powder here -- 23 Q. Okay. Sure. 24 A. -- which is the complete
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<p>1 product.</p> <p>2 I came to that conclusion based</p> <p>3 on the number of new cases of ovarian cancer</p> <p>4 that are diagnosed in the United States each</p> <p>5 year and the number of ovarian cancer deaths</p> <p>6 that occur each year.</p> <p>7 And essentially, of 21,000 or</p> <p>8 so cases of -- new cases of ovarian cancer,</p> <p>9 there are corresponding 14,000 or more deaths</p> <p>10 each year, so that's a two-thirds fatality</p> <p>11 rate if you look over time.</p> <p>12 The -- at 30% increase in the</p> <p>13 risk of -- or a 30% increase in the risk of</p> <p>14 cancer applied in reverse, that is reducing</p> <p>15 those -- that 30% increased risk from the use</p> <p>16 of perineal application of talcum powder</p> <p>17 could result in the prevention of as many as</p> <p>18 3,000 lives, depending on the prevalence of</p> <p>19 use.</p> <p>20 Q. Would that calculation require</p> <p>21 that 100% of the women in the U.S. be using</p> <p>22 talcum powder on a daily basis?</p> <p>23 A. It would require a hundred</p> <p>24 percent of the women in the U.S. to stop</p>	<p>1 A. There may not have been use of</p> <p>2 talcum powder in all those women, that's</p> <p>3 correct.</p> <p>4 Q. Do you have any notion as to</p> <p>5 what percent of those women may have used</p> <p>6 talcum powder?</p> <p>7 A. Based on these various studies,</p> <p>8 it seems to vary between 30 and 60%. It's</p> <p>9 more so in the U.S., Australia and the U.K.</p> <p>10 Q. Do you have an opinion as to</p> <p>11 how regularly a women needs to use talcum</p> <p>12 powder before her risk of ovarian cancer is</p> <p>13 increased by 30%?</p> <p>14 A. Well, based on the epidemiology</p> <p>15 studies, that risk occurs in the population</p> <p>16 in general from ever use as opposed to never</p> <p>17 use, and so it would depend on the individual</p> <p>18 woman.</p> <p>19 Each person has an individual</p> <p>20 susceptibility and individual characteristics</p> <p>21 and would probably have an individual use</p> <p>22 pattern. So I couldn't say for any</p> <p>23 individual woman.</p> <p>24 Q. And that's not what I'm asking</p>
<p>1 using talcum powder on a daily basis.</p> <p>2 Q. That wasn't my question.</p> <p>3 In order to attribute --</p> <p>4 A. Well, my answer to your</p> <p>5 question then is no.</p> <p>6 Q. In order to attribute 30% of</p> <p>7 all ovarian cancer deaths to the use of</p> <p>8 talcum powder -- let me back up.</p> <p>9 The data that you have that</p> <p>10 you've cited is talking about the percentage</p> <p>11 of women -- the percentage of women who use</p> <p>12 talcum powder who are diagnosed with ovarian</p> <p>13 cancer, correct?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. It is the total number of new</p> <p>17 diagnoses per year.</p> <p>18 BY MS. BOCKUS:</p> <p>19 Q. Okay.</p> <p>20 A. I think last year was</p> <p>21 22,000-something.</p> <p>22 Q. But that number, 22,000, 100%</p> <p>23 of those women did not use talcum powder,</p> <p>24 correct?</p>	<p>1 for. I'm really asking for in general,</p> <p>2 because that's what epidemiology is, correct?</p> <p>3 It's not talking about an individual woman,</p> <p>4 right?</p> <p>5 A. That's correct, it's describing</p> <p>6 it in the population.</p> <p>7 Q. So in the population, in the</p> <p>8 studies that you've reviewed, what is the</p> <p>9 minimum number of days per month, or however</p> <p>10 you want to describe it, that a woman would</p> <p>11 need to use talcum powder before she would be</p> <p>12 included in the group that you believe have a</p> <p>13 30% increased risk of ovarian cancer?</p> <p>14 MS. O'DELL: Object to the</p> <p>15 form.</p> <p>16 A. The only qualifier that I've</p> <p>17 been able to come up with and that I've used</p> <p>18 in this report is the regular use of talcum</p> <p>19 powder.</p> <p>20 BY MS. BOCKUS:</p> <p>21 Q. Okay.</p> <p>22 A. And that is going to vary over</p> <p>23 a broad range. It would be periodically</p> <p>24 daily to several times a week would be</p>

<p>1 regular use.</p> <p>2 Q. And over how many years must a</p> <p>3 woman use talcum powder on a regular basis</p> <p>4 before her risk of ovarian cancer is</p> <p>5 increased to 30% --</p> <p>6 MS. O'DELL: Object to the</p> <p>7 form.</p> <p>8 BY MS. BOCKUS:</p> <p>9 Q. -- in your opinion?</p> <p>10 MS. BOCKUS: Sorry.</p> <p>11 A. Some of the studies have</p> <p>12 focused on usage periods as short as one</p> <p>13 year, but most have studied longer periods of</p> <p>14 use and separated use into things like</p> <p>15 decades or accumulated total person-years</p> <p>16 based on reports of the women, multiplying</p> <p>17 frequency by time.</p> <p>18 So again, it would depend on</p> <p>19 the individual, but the research reports</p> <p>20 hover around five to ten years of regular</p> <p>21 use, resulting in significant odds ratios.</p> <p>22 BY MS. BOCKUS:</p> <p>23 Q. As I understand it in</p> <p>24 toxicology, one of the basic tenets is that</p>	<p>Page 310</p> <p>1 no threshold of exposure for risk; that we</p> <p>2 are -- we are right to use a zero threshold</p> <p>3 approach until we know more about the</p> <p>4 possibility of a threshold below which</p> <p>5 exposure would be safe. At the current time</p> <p>6 we don't have that information.</p> <p>7 Q. Do you believe that there</p> <p>8 probably is a threshold below which use is</p> <p>9 safe?</p> <p>10 A. In the carcinogenic process,</p> <p>11 which we haven't really talked about in this</p> <p>12 session today, there is an insult to a cell</p> <p>13 which affects the genetic material, the DNA.</p> <p>14 And there are built-in repair mechanisms that</p> <p>15 the cell has for fixing that problem that</p> <p>16 occurred, a mutation, for example.</p> <p>17 These kinds of insults are</p> <p>18 happening to cells all the time, not just</p> <p>19 from carcinogens in our environment, but just</p> <p>20 from natural occurrences, even endogenous</p> <p>21 biochemical reactions cause these problems.</p> <p>22 The question is: Is the repair</p> <p>23 process sufficient to undo what's been done?</p> <p>24 And an exposure to environmental carcinogens,</p>
<p>1 it's the dose that makes the poison, correct?</p> <p>2 A. That's correct.</p> <p>3 Q. That water can kill you if you</p> <p>4 drink too much of it, right?</p> <p>5 A. Theoretically.</p> <p>6 Q. In a short period of time.</p> <p>7 And so I'm trying to find out</p> <p>8 what you have determined is the threshold of</p> <p>9 risk is -- for talcum powder use by women.</p> <p>10 Do you have an opinion as to at what point a</p> <p>11 threshold has been reached where the use of</p> <p>12 talcum powder by women in their perineal</p> <p>13 region increases their risk?</p> <p>14 A. I think any use of carcinogenic</p> <p>15 materials or any exposure to carcinogenic</p> <p>16 materials increases the risk somewhat. A</p> <p>17 greater exposure, based on the</p> <p>18 "dose makes the poison" principle, would</p> <p>19 result in a greater risk.</p> <p>20 And we know from toxicologic</p> <p>21 studies that intense exposures can sometimes</p> <p>22 accelerate the process and even shorten the</p> <p>23 latency period of a carcinogenic event.</p> <p>24 So my opinion is that there is</p>	<p>Page 311</p> <p>1 that repair process is often overwhelmed so</p> <p>2 that it cannot catch up with the damage</p> <p>3 that's being created, and a tumor is born,</p> <p>4 basically.</p> <p>5 That is where the concept of</p> <p>6 threshold comes from. Have we overwhelmed</p> <p>7 the repair or not, and we don't have enough</p> <p>8 research evidence or scientific evidence to</p> <p>9 be able to define that line at this point.</p> <p>10 Q. Has there ever been a study</p> <p>11 that showed that talcum powder caused DNA</p> <p>12 damage in normal ovarian epithelial tissue?</p> <p>13 A. Well, we do have the studies</p> <p>14 that have recently been produced by Fletcher</p> <p>15 and Saed that show the inflammatory process</p> <p>16 is influenced by talc, and this is nonfibrous</p> <p>17 talc, that result in mutagenic events that</p> <p>18 are available for promotion, and there are</p> <p>19 biomarkers that have also been established</p> <p>20 for that.</p> <p>21 Q. The studies by Saed did not</p> <p>22 demonstrate DNA mutation, did they?</p> <p>23 MS. O'DELL: Object to the</p> <p>24 form.</p>

<p>1 A. I think they actually did. 2 BY MS. BOCKUS: 3 Q. That's your reading of them? 4 A. Yes. 5 Q. What Saed did is he placed talc 6 on cultured ovarian cancer cells, correct? 7 A. Yes. 8 Q. And that actually -- what he 9 recorded was an elevation in the CA-125? 10 A. That's one of the things he 11 did. He also measured -- he did a number of 12 genetic studies. He did transcribed RNA. He 13 located individual SNPs, which are single 14 nucleotide polymorphisms, in the genetic 15 material. 16 And he found that as a result 17 of that treatment, those mutations altered 18 the effectiveness of antioxidant enzymes that 19 are part of the protection mechanism and 20 shield the repair process of the cell from 21 further damage. 22 Q. Let's go back to the CA-125. 23 MS. O'DELL: If you need to 24 pull the paper out, Doctor, just, if</p>	<p>Page 314</p> <p>1 THE WITNESS: I'm sorry, it 2 appears that I do need to get the 3 original paper here. There it is. 4 Okay. Thank you. 5 (Document review.) 6 BY MS. BOCKUS: 7 Q. Can you answer the question: 8 Did Saed have any either positive or negative 9 controls that he used in his experiments? 10 MS. O'DELL: Object to the 11 form. 12 A. I think he did, but I'd like to 13 actually find it in here so I can give you 14 the specifics. 15 Well, he used normal cells and 16 epithelial ovarian cancer cells, and one was 17 the control for the other. He treated them 18 in the same way. 19 BY MS. BOCKUS: 20 Q. Let me ask a different 21 question. 22 What I'm asking is: Did he 23 use, say, glass beads to see if -- as a 24 control to the talc? Did he have anything</p>
<p>1 you want to take a moment and do that. 2 I know you were searching for it while 3 you were talking. 4 THE WITNESS: Yes, I think I 5 have it right here. 6 MS. BOCKUS: These are just 7 general questions that I'm going to 8 ask you. 9 MS. O'DELL: You still may get 10 the paper out. 11 MS. BOCKUS: Do whatever you 12 want to do. 13 THE WITNESS: You can go ahead. 14 I'm... 15 BY MS. BOCKUS: 16 Q. What controls did Saed use? 17 Did he use any controls? In other words, did 18 he place a known foreign object that was 19 not -- that was known not to be a carcinogen 20 on the cultured ovarian cells to see if there 21 was a difference? 22 MS. O'DELL: Can you just pause 23 just for a minute, let the doctor pull 24 out the exhibit?</p>	<p>Page 315</p> <p>1 that he was controlling the cells' reaction 2 to against the talc? 3 A. I don't believe so. 4 Q. That would be important in an 5 experiment of this nature, would you not 6 agree with that? 7 MS. O'DELL: Object to the 8 form. 9 A. Well, he did utilize normal and 10 cancerous cells, which would theoretically 11 act as a control in that experiment. 12 BY MS. BOCKUS: 13 Q. That's not my question. I'm 14 really asking about another element that he 15 is exposing the cells to, both the normal and 16 the cancerous cells. 17 MS. O'DELL: Objection to form. 18 BY MS. BOCKUS: 19 Q. To see if the reaction was just 20 a reaction to a foreign body versus talc 21 specifically. 22 Did he do that? 23 MS. O'DELL: Object to the 24 form.</p>

<p>1 A. I don't believe that he 2 provided a control exposure as part of this 3 experiment. 4 BY MS. BOCKUS: 5 Q. And you would agree that there 6 are many things that will increase a CA-125, 7 correct? 8 MS. O'DELL: Object to the 9 form. 10 A. Yes, it's an acute-phase 11 reactant. 12 BY MS. BOCKUS: 13 Q. Pregnancy can increase 14 somebody's CA-125? 15 A. That's correct. 16 Q. And with regard to the SNPs, 17 that is not the same thing as a test showing 18 mutation, correct? 19 MS. O'DELL: Object to the 20 form. 21 BY MS. BOCKUS: 22 Q. It's a surrogate. 23 A. Well, it's because there was 24 transcribed RNA that was used to determine </p>	<p>Page 318</p> <p>1 A. I don't specifically know. 2 BY MS. BOCKUS: 3 Q. There's no way to know that, is 4 there? 5 A. No, there's not. 6 Q. Let me find my -- there we go. 7 The Saed paper that you were 8 looking at just a minute ago, it has 9 something printed across it. What does that 10 say? 11 A. In blue here? 12 Q. Uh-huh. 13 A. "For Peer Review." 14 Q. Okay. So it hasn't yet been 15 peer reviewed; is that correct? 16 MS. O'DELL: Object to the 17 form. 18 A. It's been submitted. 19 BY MS. BOCKUS: 20 Q. So does that mean it has not 21 yet been peer reviewed? 22 MS. O'DELL: Object to the 23 form. 24 A. I think it's been accepted for </p>
<p>1 their presence, and the -- it's just part of 2 their procedure, but it identifies genetic 3 alterations. And those genetic alterations 4 transformed into differential enzyme 5 activities. 6 Q. Do you know whether there are 7 standard tests for genotoxicity and 8 mutagenicity? 9 A. There are lots of standard 10 tests, yes. 11 Q. And Saed didn't use any of 12 those, did he? 13 MS. O'DELL: Object to the 14 form. 15 A. Well, he went directly to cells 16 in culture to see what happened when they 17 were treated with talc. 18 BY MS. BOCKUS: 19 Q. Does the amount of talc that 20 Saed used compare in any way to the amount of 21 talc that may reach a woman's ovary from 22 perineal application? 23 MS. O'DELL: Object to the 24 form. </p>	<p>Page 319</p> <p>1 publication. 2 BY MS. BOCKUS: 3 Q. But the copy you have says on 4 it "For Peer Review," correct? 5 A. That's correct. 6 Q. In the paragraph that we were 7 looking at earlier, where you were talking 8 about the startling regularity, later on in 9 the paragraph you state that there 10 is clearly -- sufficient particulate 11 materials applied routinely to the perineum 12 have ready access and in sufficient 13 quantities to produce biologic responses in 14 internal tissues. 15 What internal tissues have you 16 seen any study recording a biologic response 17 to talc from? 18 That was such a bad question, 19 I'm going to ask it again. 20 What internal tissues are you 21 referring to there? 22 A. Well, it says including -- 23 including ovaries and surrounding structures. 24 By surrounding structures, I'm referring to </p>

1 the fallopian fimbriae and the epithelium of 2 the cavity. 3 Q. So -- and I know we've been 4 through this already, but to your knowledge, 5 there are no studies reporting biologic 6 responses to talc in the vagina, correct? 7 A. Not that I'm aware. 8 Q. You're not aware of any studies 9 reporting biologic responses to talc in the 10 cervix, correct? 11 A. Correct. 12 Q. Are you aware of any studies 13 reporting biologic response to the uterus? 14 A. No. 15 Q. Are you aware of any studies 16 reporting a biologic response in the 17 fallopian tubes? 18 MS. O'DELL: Object to the 19 form. 20 A. Well, I don't -- I'm not aware 21 of studies that draws a direct correlation 22 between exposure to talc and reaction in the 23 fallopian tubes. 24 ///	Page 322 1 fallopian tube goes into that fluid and just 2 gets moved around all the time; is that 3 correct? 4 MS. O'DELL: Objection. Excuse 5 me. Objection, form. 6 A. Well, there's a fairly direct 7 presentation of the ovary, so there's not a 8 large space there, but there is a space. And 9 whatever goes into that space remains there. 10 Some of it may come back out. 11 BY MS. BOCKUS: 12 Q. Does the fallopian tube move 13 around during the month? 14 MS. O'DELL: Object to the 15 form. 16 A. I don't know. 17 MS. BOCKUS: I'm almost 18 finished. I'm going through all the 19 things that I've crossed off. 20 BY MS. BOCKUS: 21 Q. So I understand you correctly, 22 you have not identified a nonthreshold dose 23 of talc; is that correct? 24 MS. O'DELL: Object to the	Page 324 Page 323 1 BY MS. BOCKUS: 2 Q. Okay. Is the ovary attached to 3 the fallopian tube? 4 A. It is -- it's in the proximity. 5 It's not directly attached. 6 Q. And what surrounds the ovary? 7 A. There's a structure that -- the 8 ovary itself? 9 Q. Yes. 10 A. There's an epithelial membrane 11 around the ovary, and -- 12 Q. And then what touches the 13 epithelial membrane? 14 A. Well, the fimbriae of the 15 fallopian tubes surround that and the rest of 16 it is just sort of space. 17 Q. Space. Is the space filled 18 with fluid? 19 A. It is. 20 Q. And is that fluid kind of 21 moving around? 22 A. All the time. 23 Q. All the time. 24 So things that come through the	Page 325 1 form. 2 A. You mean a dose that is below a 3 safe threshold? 4 BY MS. BOCKUS: 5 Q. Correct. 6 A. No, I have not. 7 Q. Did you make any attempt to 8 extrapolate a de minimis risk level? 9 MS. O'DELL: Object to the 10 form. 11 A. I did not. It would be nice to 12 be able to do that, considering that most of 13 us have had talcum powder exposures of one 14 sort or another during our lives. And it's 15 something that seems to have been felt to be 16 very useful. 17 So it would be nice to be able 18 to do that exercise, but I haven't -- I have 19 not been prevented -- presented with the 20 information to approach that, nor am I aware 21 of anyone else who's been able to do it. 22 BY MS. BOCKUS: 23 Q. What information would you need 24 that you don't have?
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<p>1 A. Well, we'd need -- we'd need 2 dose information, first of all, which we 3 don't have, to combine with the epidemiologic 4 results. 5 We need to define the 6 mechanistic issues better than they are 7 currently, and at that point I think we would 8 be able to make some strong conclusions 9 regarding potential thresholds of hazardous 10 doses. 11 Q. You would agree that the great 12 majority of women who use talcum powder on a 13 regular basis are never diagnosed with 14 ovarian cancer, correct? 15 A. I think that's true. 16 Q. And it's also true that the 17 majority of women diagnosed with ovarian 18 cancer have never used talcum powder on a 19 regular basis, correct? 20 MS. O'DELL: Object to the 21 form. 22 A. I think it's a majority, but 23 there's a significant number who have. 24 ///</p>	<p>Page 326</p> <p>1 you? In other words, are they referred by 2 other people? 3 A. I have primarily a referral 4 practice in toxicology. 5 Q. In toxicology? And so what 6 types of patients are referred to you? 7 A. I have patients who are either 8 workplace-related patients who have had 9 chemical or other substance exposures. I 10 also have a number of environmental exposure 11 patients that I see. 12 And I also have a number of -- 13 I also see a number of patients for general 14 routine surveillance activities or required 15 exams by regulation, either for licensure or 16 certification. 17 Q. Are you sent patients where the 18 patient is trying to figure out why they got 19 some disease? 20 A. Sometimes. Usually the patient 21 comes and tells me why they got the disease, 22 and I go -- I talk to them about the 23 possibilities, and we look at ways of 24 confirming that or refuting it, or in many</p>
<p>1 BY MS. BOCKUS: 2 Q. But the majority have not, 3 correct? 4 A. I would say more than 50% have 5 not. 6 Q. And would you agree that -- let 7 me back up. 8 When is the last time you 9 conducted a pelvic exam? 10 A. I haven't done one in a couple 11 of years. 12 Q. Under what circumstances did 13 you do it two years ago? 14 A. I see patients regularly, and 15 in some cases, pelvic exams are either 16 requested or indicated by the issue. 17 Q. It's not something you do on a 18 regular basis, correct? 19 A. It's not. 20 Q. And you do not -- what 21 percentage of your patients are women? 22 A. Probably half, maybe a little 23 less than half. 24 Q. How do patients come to see</p>	<p>Page 327</p> <p>1 cases, altering to a correct path of 2 diagnostic investigation. 3 Q. So sometimes a patient comes to 4 you and says: I was exposed to this chemical 5 and that's why I can't breathe? 6 A. Yes. 7 Q. And you do an investigation, 8 and sometimes you say: You know what, that 9 chemical has nothing to do with why you can't 10 breathe? 11 A. Sometimes that's the case. 12 MS. O'DELL: Are you finished, 13 sir? Are you finished? 14 A. Well, I just wanted to add -- 15 BY MS. BOCKUS: 16 Q. Sure. 17 A. -- that although many times it 18 is the case, and often the patient does 19 understand that connection quite well, 20 usually from a very closely connected cause 21 and effect kind of relationship. It's when 22 things are stretched out much more in time, 23 and there is a likely suspect that may be an 24 innocent bystander, that they may get</p>

<p>1 confused.</p> <p>2 Q. Have you ever been referred a</p> <p>3 patient to determine why they have ovarian</p> <p>4 cancer?</p> <p>5 A. No.</p> <p>6 Q. Do you know of any methodology</p> <p>7 accepted in the medical community for</p> <p>8 determining why an individual woman has</p> <p>9 developed ovarian cancer?</p> <p>10 MS. O'DELL: Object to the</p> <p>11 form.</p> <p>12 A. Other than genetic testing that</p> <p>13 identifies specific risks and history taking</p> <p>14 that might identify other known risk factors</p> <p>15 for that woman, there is -- I don't believe</p> <p>16 that there is any good or prescribed</p> <p>17 procedure for making that determination, and</p> <p>18 there is no reasonable screening test that</p> <p>19 can find that cancer when it is at an early</p> <p>20 stage.</p> <p>21 BY MS. BOCKUS:</p> <p>22 Q. Do you believe that obesity</p> <p>23 causes ovarian cancer?</p> <p>24 A. It certainly seems to be</p>	<p>Page 330</p> <p>1 for that population of women?</p> <p>2 A. Well, it varies depending on</p> <p>3 the research study that has been done, but</p> <p>4 I've seen odds ratios or relative risks all</p> <p>5 the way from 1 or even below to very high</p> <p>6 numbers, like 20 to 50.</p> <p>7 Q. 20.0, is that what you're</p> <p>8 saying?</p> <p>9 A. Yes, 20.0.</p> <p>10 Q. Not 1.2, but 20.0?</p> <p>11 A. Correct.</p> <p>12 Q. Okay.</p> <p>13 A. Which is a -- which would be 20</p> <p>14 times the normal risk without the exposure.</p> <p>15 Q. Okay. So we've got obesity and</p> <p>16 heavy exposure to asbestos. Any other risk</p> <p>17 factors that you're familiar with?</p> <p>18 MS. O'DELL: Objection --</p> <p>19 excuse me. Objection, misstates the</p> <p>20 doctor's testimony.</p> <p>21 You may answer.</p> <p>22 THE WITNESS: Okay.</p> <p>23 A. Other risk factors for ovarian</p> <p>24 cancer would include things like early</p>
<p>1 related to the occurrence of ovarian cancer</p> <p>2 from a statistical point of view.</p> <p>3 Q. What is the increase in a</p> <p>4 woman's risk of ovarian cancer if she's obese</p> <p>5 compared to a nonobese woman?</p> <p>6 A. In terms of numbers?</p> <p>7 Q. Yes, sir.</p> <p>8 A. I don't know the -- I don't</p> <p>9 know the numbers.</p> <p>10 Q. What other risk factors are you</p> <p>11 familiar with for ovarian cancer?</p> <p>12 A. Well, certainly work with</p> <p>13 asbestos is a risk factor, and we have a</p> <p>14 number of studies that have shown women</p> <p>15 working in the asbestos industry or women who</p> <p>16 are married to asbestos workers and have</p> <p>17 secondary exposure presumably from that are</p> <p>18 at risk for ovarian cancer.</p> <p>19 There are --</p> <p>20 Q. Let me stop you just one</p> <p>21 second.</p> <p>22 A. Yes.</p> <p>23 Q. What percentage -- what is</p> <p>24 their relative risk or what is the odds ratio</p>	<p>Page 331</p> <p>1 menarche, late menopause, never being</p> <p>2 pregnant. These are some of the more common</p> <p>3 risk factors that are identified.</p> <p>4 There are genetic risk factors</p> <p>5 that are known, like the BRCA mutations,</p> <p>6 which confer an increased risk. Family</p> <p>7 history.</p> <p>8 BY MS. BOCKUS:</p> <p>9 Q. Do you know the odds ratios of</p> <p>10 any of the risk factors that you just</p> <p>11 identified of never having children, having</p> <p>12 early menarche or late menopause?</p> <p>13 A. Right offhand, I don't know</p> <p>14 what those odds ratios -- the range of those</p> <p>15 are.</p> <p>16 Q. Do you know if any of those</p> <p>17 odds ratios exceed 1.3?</p> <p>18 A. I think they do.</p> <p>19 Q. Does that lead you to conclude</p> <p>20 that those things cause ovarian cancer?</p> <p>21 A. It certainly argues for that.</p> <p>22 The -- there's a risk factor that derives</p> <p>23 from something. You need a mechanism to fill</p> <p>24 in the blank.</p>

<p>1 But also, some of these risk 2 factors are so common in the population that 3 we can concoct large cohort studies that will 4 have -- can have very low relative risks, 5 like on the order of 1.3 or even lower, and 6 still a significant result. 7 So the more common a factor is, 8 the easier it is to do the research and the 9 more likely you'll get a finding that's 10 relevant to interpretation. 11 Q. What pushes a talc particle 12 from the perineum into the vagina? 13 A. Probably mostly the law of mass 14 action. It simply goes of its own volition. 15 These small particles are always in motion 16 through molecular forces, and they simply 17 move in all directions, and some of them move 18 in that direction. 19 Q. Would that be true for any 20 small particles applied to a woman's 21 perineum? 22 A. Yes. 23 Q. Are you board certified in 24 medical toxicology?</p>	<p>Page 334</p> <p>1 Q. So you think you just ran into 2 her? 3 A. Yeah. 4 Q. The other people that you 5 identified that you discussed your report 6 with, did you ask them to read your report? 7 A. I asked them to look at parts 8 of it, early drafts of it to let me know if 9 they thought I was making sense. 10 Q. And did they offer you comments 11 and suggestions for changes in your paper? 12 A. Not really. Mostly they gave 13 me a pat on the back and said: I think 14 you're doing a good job, just sort of beef 15 this part up, and what do you mean by this, 16 maybe I could rephrase that. That sort of 17 thing. 18 Q. Did they give you written 19 suggestions? 20 A. No, these were all verbal 21 comments. 22 Q. Had you given them a hard copy 23 of the portions of your report that you 24 wanted them to comment on?</p>
<p>1 A. I'm not. I started practicing 2 medical toxicology before there was a board 3 in the specialty, and I've been grandfathered 4 into the profession as a member of the 5 American College of Medical Toxicology. 6 Q. How long did you talk to 7 Dr. Ness about her paper? 8 A. About her paper, probably a 9 minute and a half. About all kinds of other 10 things, for a while. 11 Q. What other kinds of things? 12 A. Mostly personal things that had 13 nothing to do with talc or this case. 14 Q. How long do you think that 15 conversation was? 16 A. Well, with Dr. Ness, nothing 17 lasts very long, so I would say ten minutes 18 at the most. 19 Q. Okay. Did you call her? 20 A. No. She's -- she comes and 21 goes in the same building where I office, and 22 my office is just on the opposite side of the 23 floor of hers, and I see her sometimes in 24 passing or in the elevator.</p>	<p>Page 335</p> <p>Page 337</p> <p>1 A. Yes. 2 Q. And they didn't redline it or 3 make -- draw arrows or anything like that for 4 you? 5 A. I think actually George Delclos 6 did draw some -- or make some notes on there 7 and hand it back to me, and I incorporated 8 those into my electronic version. 9 Q. Do you still have George's 10 notes to you? 11 A. No, I don't. 12 Q. Is he the only one out of the 13 people that you asked to look at it who gave 14 you handwritten notes? 15 A. Yes, I think so. 16 Q. Have you seen the term 17 "intrinsic elimination system" regarding the 18 ovary in any of the publications that you've 19 read? 20 A. I don't know, I may have. 21 Q. Can you think of one in 22 particular that discusses that characteristic 23 of -- that you believe relates to the ovary? 24 A. Well, the migration papers</p>

<p>1 discuss migration to the ovary. It would 2 probably be a talc paper, though. I don't 3 recall seeing it anywhere.</p> <p>4 Q. Did you consult any gynecologic 5 textbooks?</p> <p>6 A. No, I didn't. I may have 7 looked at some diagrams on the Internet.</p> <p>8 Q. Okay. Did you consult any 9 gynecologic oncology textbooks?</p> <p>10 A. Not textbooks, no.</p> <p>11 Q. Do you know the position of the 12 Society of Gynecologic Oncologists on the 13 question of whether does talc increase a 14 woman's risk for ovarian cancer?</p> <p>15 A. No, I don't.</p> <p>16 Q. Would that be important to you 17 to know their position?</p> <p>18 A. No, I don't think so.</p> <p>19 Q. Do you know the position of 20 ACOG on whether the use of -- perineal use of 21 talc increases a woman's risk of ovarian 22 cancer?</p> <p>23 A. I don't know that either. 24 That's not something I've looked at.</p>	<p>Page 338</p> <p>1 that?</p> <p>2 A. Well, I saw this actually when 3 I first started this process, and I think 4 Dr. Longo was involved in that activity, 5 where they modeled the -- the application of 6 talcum powder and did some calculations based 7 on the amount of substance that was used, and 8 they measured it in things like shakes and -- 9 and then quantified the amount that was lost 10 from the container to determine what an 11 application amount was.</p> <p>12 I don't think they were able to 13 go beyond that point in the modeling process.</p> <p>14 Q. You didn't see anything that 15 Dr. Longo did that attempted to quantify the 16 amount of talcum powder from a single shake 17 that ended up on a woman's perineum, did you?</p> <p>18 MS. O'DELL: Object to the 19 form.</p> <p>20 A. I -- you know, I don't know the 21 answer to that, simply because I don't 22 recall, but I wouldn't be surprised that 23 there was an attempt made to do that. But 24 beyond that, I don't think anything would be</p>
<p>1 Q. Would that be important to you?</p> <p>2 A. No.</p> <p>3 Q. Do you have any scientific text 4 that suggests that an inert particle resides 5 on the ovary longer than it does in the 6 cervix?</p> <p>7 A. Well, I have -- I have a paper 8 that relates to the time for dissolution of a 9 particle in biological fluids, which would go 10 to the length of time a particle of talc 11 remains in the ovary once it gets there.</p> <p>12 But I don't have -- I don't 13 know that I have a scientific paper that 14 specifically says that it stays in the ovary 15 longer than it stays in the cervix.</p> <p>16 Q. You testified that you 17 understand there have been some attempts to 18 quantify the amount of talc, I guess from a 19 single use, that ends up on the perineum.</p> <p>20 Did I understand that 21 correctly?</p> <p>22 A. Yes.</p> <p>23 Q. Can you tell me what those 24 attempts are, who did them, where did you see</p>	<p>Page 339</p> <p>1 successful.</p> <p>2 These were clothed subjects, so 3 that adds another factor to the calculation.</p> <p>4 BY MS. BOCKUS:</p> <p>5 Q. Is that the only experiment 6 that you're familiar with that you've seen 7 anywhere that attempts to quantify the amount 8 of talcum powder from a single use that ends 9 up actually on a woman's perineum?</p> <p>10 A. There was another part of that 11 study where they applied it to underwear with 12 the same sort of calculation process. It was 13 all part of the same modeling process.</p> <p>14 Q. And do you recall what 15 percentage of the talc applied to the 16 underwear ended up adhered to the woman's 17 perineum?</p> <p>18 MS. O'DELL: Object to the 19 form.</p> <p>20 A. I don't think -- I don't think 21 they measured the amount that adhered to the 22 perineum. I think what they were interested 23 in was proximity.</p> <p>24 ///</p>

1 BY MS. BOCKUS: 2 Q. Okay. Can you tell me the 3 names of the environmental websites that have 4 been talking about IARC revisiting their 5 classification of talc? 6 A. There are -- there are a number 7 of Twitter feeds and websites that carry on 8 this kind of discussion. Science Interest is 9 one of them. I think IARC Watch is another 10 one. I have -- I get e-mails about some of 11 these and end up going into them for a period 12 of time and seeing if they have anything 13 interesting going on. Some of them are 14 searchable. 15 And then I get e-mails from the 16 ones that I visit about other ones. So I 17 spend as much of my time deleting these 18 e-mails without reading them as I do actually 19 viewing the material. 20 Q. So fair to say this is just 21 chatter you've seen on the Internet in these 22 different chat rooms or Twitter accounts that 23 you visit from time to time? 24 A. It's all Internet based, yes.	Page 342 1 A. Uh-huh. 2 Q. And echoing what my colleagues 3 have said today, if there's at any point I 4 ask a question that you do not understand, 5 just stop me and ask me to rephrase it or let 6 me know otherwise, okay? 7 A. I will. 8 Q. Thanks. 9 So going back shortly to your 10 scope of work, do you teach any coursework on 11 talc or ovarian cancer? 12 A. I teach some general courses. 13 Up until last spring I taught a general 14 environmental health course for graduate 15 students in the Master of Public Health 16 program at the School of Public Health, and 17 in that course we did touch on things like 18 environmental exposures that would include 19 minerals of various varieties, but it was 20 very cursory. 21 Q. And was that curriculum 22 specific to environmental and industrial 23 products or minerals as opposed to consumer 24 products?	Page 343 1 MS. BOCKUS: Okay. I think 2 that's all I have. Thank you. 3 MS. O'DELL: Why don't we take 4 a short break. We've been going about 5 two hours. 6 MR. ZELLERS: Do you have 7 questions? 8 MS. APPEL: I do, but -- 9 MS. O'DELL: Yeah, do you 10 have -- 11 MS. APPEL: I don't have a lot. 12 MS. O'DELL: Okay. Sure. Why 13 don't you go ahead, and then we'll 14 take a break. We have been going 15 about two hours, but, Renée, please. 16 If you're okay, Doctor. 17 THE WITNESS: I'm fine. 18 EXAMINATION 19 BY MS. APPEL: 20 Q. It's been a while since we did 21 introductions, so just as a reminder, my name 22 is Renée Appel and I'm here on behalf of 23 Seyfarth Shaw and I represent Personal Care 24 Products, counsel.	Page 345 1 A. We actually did touch on other 2 consumer products as well in terms of the 3 significant environmental problem that we 4 have currently, but -- regarding the huge 5 volume of personal care products that goes 6 into our aqueous waste stream and how that's 7 affecting the aquatic environment as well as 8 groundwater and so forth. 9 As a matter of fact, in that 10 course, as part of the culmination of the 11 course, there are student workgroups that 12 develop presentations on a particular topic, 13 and the topic of personal care products has 14 been a favorite choice for the last several 15 years. 16 Q. But your curriculum did not 17 include talc among those products? 18 MS. O'DELL: Object to the 19 form. 20 A. I think talc may have been 21 represented as an individual mineral on a 22 slide that listed many minerals. 23 BY MS. APPEL: 24 Q. Earlier today you had mentioned
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<p>1 a shared file. Is that shared file something 2 that you created or plaintiffs' counsel 3 created? 4 A. It's something that I think 5 plaintiffs' counsel created for me to be able 6 to send them documents and receive documents, 7 and it's a Dropbox share file. It's -- at 8 this point I think it might be mine. I'm not 9 sure just exactly who's in charge of that or 10 runs it, but it comes directly into my 11 Dropbox file. 12 I know I had to boost my 13 subscription to Dropbox in order to hold the 14 2 gigabytes of data from -- that we were 15 putting into there. 16 Q. Is there anything from that 17 Dropbox file that you relied upon in forming 18 your opinion in your report that you have not 19 already provided to defense counsel? 20 A. No, everything that was in that 21 Dropbox that I've relied upon has been 22 identified here. 23 Q. Who prepared Exhibit B to your 24 report?</p>	<p>Page 346</p> <p>1 accumulating information in the draft as a 2 result of my review of the literature. 3 So if I had to separate things 4 out, I would say that, by far, the -- most of 5 the time has been spent in reading articles 6 and reviewing them and comparing them with 7 other articles, and a comparatively small 8 amount of time has been spent in drafting the 9 report. 10 Although there were some 11 strings of activity which was all report 12 drafting basically, I would say probably 85 13 to 90% was research, seeking articles, 14 reading them, reviewing them, and comparing 15 them. 16 Q. And you also testified earlier 17 today that you discarded information not 18 relevant or interesting to you. 19 How did you make that 20 determination? 21 MS. O'DELL: Objection to the 22 form. 23 A. The things that I discarded did 24 not seem to fit into my gestalt of the</p>
<p>1 A. Exhibit B was a list of 2 articles from the research literature 3 included in the Dropbox that -- that I think 4 does not -- I don't know whether it includes 5 the referenced articles from my report or 6 not, but they were all part of the same 7 collection of research articles and 8 supplemental documents. 9 Q. And my question, Dr. Carson, 10 was: Who prepared that exhibit? 11 A. The exhibit was prepared by the 12 plaintiffs' attorneys. 13 Q. You testified earlier that you 14 have spent approximately 150 to 180 hours in 15 your expert retention work; is that correct? 16 A. Correct. 17 Q. Can you estimate what portion 18 of that time was spent researching versus 19 what portion of time was spent actually 20 drafting your expert report? 21 A. Those two things are in some 22 ways difficult to separate because I would -- 23 I was writing my report the entire time that 24 I was reviewing the research materials and</p>	<p>Page 347</p> <p>1 understanding of this question and the 2 opinions that I wanted to express. They may 3 have been interesting information and useful 4 for some purposes, but not for this 5 particular report. 6 BY MS. APPEL: 7 Q. Was some of that information 8 that you discarded based on relevancy or that 9 you determined was not of interest 10 information that may have been different than 11 your opinions? 12 A. No. I didn't discard any 13 research because the opinions provided 14 differed from my own. These were things that 15 really were irrelevant to the question. 16 I remember finding an awful lot 17 of geological research stuff that just didn't 18 have any relevance to the question. 19 Because I used such broad 20 search terms, I ended up pulling in a whole 21 lot of things that were not necessary or 22 useful, and those just went in the trash. 23 Q. You testified earlier that you 24 have not treated any patients with ovarian</p>

<p>1 cancer; is that correct?</p> <p>2 A. Not knowingly, not because of</p> <p>3 ovarian cancer.</p> <p>4 Q. Have you ever diagnosed any</p> <p>5 patients with ovarian cancer?</p> <p>6 A. I think when I was in medical</p> <p>7 school or residency, I probably participated</p> <p>8 in that on several patients.</p> <p>9 Q. Have you ever instructed a</p> <p>10 patient not to use talcum powder products?</p> <p>11 A. I hadn't up until a month or</p> <p>12 two ago, but I've been asking people about --</p> <p>13 about their talcum powder use just as sort of</p> <p>14 a curiosity in mentioning that there might be</p> <p>15 a risk.</p> <p>16 Q. Do you ask that of all your</p> <p>17 patients?</p> <p>18 A. I would say no, I don't usually</p> <p>19 ask the men that, but I probably should.</p> <p>20 Q. And have the responses to those</p> <p>21 inquiries of your female patients and their</p> <p>22 talcum product use, has that been used at all</p> <p>23 to inform your opinions in this case?</p> <p>24 A. I don't think so. There have</p>	<p>Page 350</p> <p>1 usually administer to my patients, and I have</p> <p>2 plans to add that as a question in my</p> <p>3 environmental exposure survey. Which I</p> <p>4 haven't done already, but will as soon as I</p> <p>5 get the opportunity.</p> <p>6 BY MS. APPEL:</p> <p>7 Q. You testified earlier today</p> <p>8 that you do not believe there was ever a</p> <p>9 point where talcum powder did not contain</p> <p>10 asbestos, correct?</p> <p>11 A. Yes.</p> <p>12 Q. So in forming your opinion in</p> <p>13 your report, you've assumed that the talcum</p> <p>14 powder does contain asbestos, correct?</p> <p>15 MS. O'DELL: Object to the</p> <p>16 form.</p> <p>17 A. Well, I think the asbestos</p> <p>18 contribution to this whole issue is important</p> <p>19 and significant. I think there's good</p> <p>20 evidence that whatever we call talcum powder</p> <p>21 is carcinogenic and responsible for ovarian</p> <p>22 cancer -- as a cause of ovarian cancer, but I</p> <p>23 can't say -- I can't say based on looking at</p> <p>24 a can of talcum powder whether or not it has</p>
<p>1 been very few that I have asked that question</p> <p>2 in the last month or so. I've had a limited</p> <p>3 clinic schedule during this period of time.</p> <p>4 We had the holidays and other things, so I</p> <p>5 haven't seen that many patients.</p> <p>6 And of those I've asked about</p> <p>7 it, it seems about half of the women have had</p> <p>8 a history of using talcum powder.</p> <p>9 Q. And of those women that are</p> <p>10 using -- have told you that they have used</p> <p>11 talcum powder, are those women diagnosed with</p> <p>12 ovarian cancer?</p> <p>13 A. No.</p> <p>14 Q. So suffice to say the inquiry</p> <p>15 that you've asked of your female patients</p> <p>16 concerning their talcum use has nothing to do</p> <p>17 with the question that you've been posed in</p> <p>18 this particular litigation?</p> <p>19 MS. O'DELL: Object to the</p> <p>20 form.</p> <p>21 A. Actually, that's the only</p> <p>22 reason I've been asking them. It's not</p> <p>23 something that came to mind earlier. I have</p> <p>24 an environmental exposure survey that I</p>	<p>Page 351</p> <p>1 asbestos in it or how much.</p> <p>2 BY MS. APPEL:</p> <p>3 Q. Have you formed an opinion,</p> <p>4 Dr. Carson, on whether there's a relationship</p> <p>5 between pure talc and ovarian cancer?</p> <p>6 MS. O'DELL: Objection to form.</p> <p>7 A. My opinion is there is, but</p> <p>8 that's based on the research reports that</p> <p>9 have been done using so-called pure talc,</p> <p>10 talcum powder, and I am -- I -- my opinion is</p> <p>11 that it's unlikely that those test substances</p> <p>12 actually are pure talc.</p> <p>13 BY MS. APPEL:</p> <p>14 Q. So again, Dr. Carson, in</p> <p>15 forming your opinions, you have done so on</p> <p>16 the belief that all the talc powder products</p> <p>17 or just pure talc do, in fact, contain</p> <p>18 asbestos?</p> <p>19 MS. O'DELL: Objection to form.</p> <p>20 A. It is my opinion that all</p> <p>21 talcum powder products do contain a certain</p> <p>22 amount of asbestos, even if it's extremely</p> <p>23 small.</p> <p>24 My opinions have been formed</p>

<p>1 based on research that has been done on 2 available talcum powder products, so I guess 3 the research would have been done using some 4 small quantity of asbestos in all of those 5 studies.</p> <p>6 BY MS. APPEL:</p> <p>7 Q. You also testified today, 8 Dr. Carson, that you have found in your 9 research that there is a dose-response 10 relationship between talcum powder products 11 and ovarian cancer, correct?</p> <p>12 A. Well, a number of the research 13 studies, the epidemiology studies have shown 14 positive and statistically significant 15 trends.</p> <p>16 Q. And those trends that you're 17 relying on, Dr. Carson, actually only relate 18 to duration and frequency, correct?</p> <p>19 MS. O'DELL: Objection to form.</p> <p>20 A. Yes, they do relate to duration 21 and frequency, which is the only surrogate we 22 have for dose.</p> <p>23 BY MS. APPEL:</p> <p>24 Q. So in forming your opinion,</p>	<p>Page 354</p> <p>1 classified by IARC. 2 BY MS. APPEL: 3 Q. But it's your opinion that a 4 possible carcinogen -- strike that. 5 It's your opinion that any dose 6 of a possible carcinogen can cause cancer? 7 MS. O'DELL: Objection to form. 8 A. Yes, I think there is a 9 potential for any dose of a carcinogen to 10 cause a cancer. There's also the principle 11 that the lower the dose, the less likely it 12 is, the lower the risk is for developing a 13 cancer.</p> <p>14 BY MS. APPEL:</p> <p>15 Q. And your opinion extends to 16 those particles that have not been identified 17 as carcinogens, but may just be possible 18 carcinogens?</p> <p>19 A. I think talc has been 20 identified as a carcinogen.</p> <p>21 Q. So you disagree with the IARC 22 classification?</p> <p>23 A. The IARC 2B classification is a 24 carcinogenic classification.</p>
<p>Page 355</p> <p>1 Dr. Carson, you have not determined a level 2 of harmful exposure to talcum powder products 3 that causes ovarian cancer?</p> <p>4 A. That's correct.</p> <p>5 Q. And you did not conduct a dose 6 assessment between talcum powder products and 7 ovarian cancer, correct?</p> <p>8 MS. O'DELL: Objection to form.</p> <p>9 A. Well, I did not conduct a 10 dose-response, but I am of the opinion that 11 there's no safe threshold for exposure to a 12 carcinogen until such a threshold is 13 identified.</p> <p>14 BY MS. APPEL:</p> <p>15 Q. And does that include 16 Category 2B particles as well --</p> <p>17 MS. O'DELL: Objection.</p> <p>18 BY MS. APPEL:</p> <p>19 Q. -- that it's a possible 20 carcinogen?</p> <p>21 MS. O'DELL: Objection to form.</p> <p>22 A. It includes the talc that was 23 discussed in the IARC report. Those 24 conclusions have nothing to do with how it's</p>	<p>Page 357</p> <p>1 Q. But you recognize and -- that 2 there are different types of categories that 3 IARC has?</p> <p>4 A. Yes.</p> <p>5 Q. And that -- it's that talc that 6 does not contain asbestos was not, in fact, 7 categorized as a Group 1, correct?</p> <p>8 A. That's correct.</p> <p>9 Q. So is it your opinion, then, 10 looking at other 2B-classified particles by 11 IARC, that any exposure to pickled vegetables 12 would cause cancer?</p> <p>13 A. We know that there are a number 14 of carcinogens that are regularly present in 15 things like the food that we eat. We have a 16 rule that says that those things should not 17 be included in food items unless they have 18 passed a particular exemption process.</p> <p>19 Pickled vegetables are 20 something that people have been familiar with 21 and have been using for hundreds of years, 22 and things like talcum powder are things that 23 have been used for -- well, at least a 24 hundred years, but probably considerably</p>

<p>1 longer.</p> <p>2 And whether or not those things</p> <p>3 are carcinogens, there are people who still</p> <p>4 find enough value to offset that factor in</p> <p>5 their own lives and they can make their own</p> <p>6 decisions regarding their exposure.</p> <p>7 It's a similar concept to</p> <p>8 people who choose to smoke. Although smoking</p> <p>9 is an addictive behavior, people are aware</p> <p>10 that it causes disease, including cancer, and</p> <p>11 yet they continue to smoke.</p> <p>12 We continue to eat grilled</p> <p>13 meats, even -- most of us know now that</p> <p>14 grilled meats contain polycyclic aromatic</p> <p>15 hydrocarbons that are known carcinogens, some</p> <p>16 of them Group 1 carcinogens, and yet, we</p> <p>17 continue that practice and revel in it even.</p> <p>18 That's just part of what we do as human</p> <p>19 beings.</p> <p>20 The issue with talc is a</p> <p>21 complicated question in my mind. I think I'm</p> <p>22 straying a bit from your -- from your</p> <p>23 question, but baby powder, for example, is</p> <p>24 something that has a very -- very dear sort</p>	<p>Page 358</p> <p>1 A. Pickled vegetables.</p> <p>2 Q. -- I had was pickled</p> <p>3 vegetables, and the question was whether or</p> <p>4 not is your opinion that any consumption of</p> <p>5 pickled vegetables causes cancer?</p> <p>6 MS. O'DELL: Objection to form.</p> <p>7 A. I believe the primary form of</p> <p>8 cancer that's potentially related with</p> <p>9 pickled vegetables is stomach cancer, and</p> <p>10 there is a slight increase in risk with</p> <p>11 consumption of pickled vegetables for</p> <p>12 everybody who does it.</p> <p>13 BY MS. APPEL:</p> <p>14 Q. Okay. And what about gasoline</p> <p>15 or exhaust?</p> <p>16 A. Gasoline meaning the fuel?</p> <p>17 Q. Yes.</p> <p>18 A. Well, gasoline used to contain</p> <p>19 a significant amount of benzene, which was</p> <p>20 a -- determined to be a carcinogenic</p> <p>21 substance. In recent years, most of the</p> <p>22 benzene has been removed from gasoline, so</p> <p>23 now there's very little benzene in vapors</p> <p>24 that are expressed.</p>
<p>1 of relationship to many people.</p> <p>2 The experience with that from</p> <p>3 the time you were a baby until you grow up</p> <p>4 and have your own children involves a lot of</p> <p>5 the use of baby powder in many, many</p> <p>6 households. That's a difficult relationship</p> <p>7 to break. It's psychological as much as it</p> <p>8 is knowledge based.</p> <p>9 So as we go through the</p> <p>10 decades, we get a little safer and safer as</p> <p>11 we begin to peel these habits, these</p> <p>12 dangerous habits away from our lives and</p> <p>13 accept better lifestyles.</p> <p>14 MR. ZELLERS: Move to strike as</p> <p>15 nonresponsive.</p> <p>16 MS. APPEL: Respectfully --</p> <p>17 MS. BOCKUS: Is he finished?</p> <p>18 MR. ZELLERS: I don't think so.</p> <p>19 THE WITNESS: I can go on.</p> <p>20 BY MS. APPEL:</p> <p>21 Q. Yeah. My question was more</p> <p>22 narrow, and I was analogizing your opinion as</p> <p>23 to talcum powder and was asking about other</p> <p>24 2B classifications, and my example --</p>	<p>Page 359</p> <p>1 But there's a small amount. So</p> <p>2 when you inhale gasoline vapors, you are also</p> <p>3 exposing yourself to a very small amount of a</p> <p>4 carcinogenic substance.</p> <p>5 As far as exhaust is concerned,</p> <p>6 diesel exhaust in particular has -- contains</p> <p>7 particles that have been identified through</p> <p>8 various bioassays to be carcinogenic. So</p> <p>9 diesel exhaust is regulated as a carcinogenic</p> <p>10 material, even though we continue to be</p> <p>11 exposed.</p> <p>12 Q. And it's your opinion that any</p> <p>13 exposure that we all incur related to exhaust</p> <p>14 will cause us cancer?</p> <p>15 MS. O'DELL: Objection to form.</p> <p>16 A. It will cause an increase in</p> <p>17 risk of cancer. Doesn't necessarily cause</p> <p>18 cancer in everybody.</p> <p>19 BY MS. APPEL:</p> <p>20 Q. Okay. Are you aware that Saed</p> <p>21 has been hired by plaintiffs' counsel in this</p> <p>22 litigation?</p> <p>23 A. I am. And when I misspoke</p> <p>24 earlier today regarding the Taher paper, I</p>

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1 was thinking of the Saed paper.

2 Q. Okay. Last question: Counsel
3 was asking you about the migration process,
4 and you mentioned that in the course of
5 particles moving up the track, that some of
6 it may come back out even after it reaches
7 the fluid surrounding the ovaries, correct?

8 A. Yes.

9 Q. So if particles have the
10 ability to come back out, that means that
11 there is, in fact, some form of an intrinsic
12 elimination system.

13 A. Well, if this is all based on
14 mass action, it would not necessarily be an
15 intrinsic elimination system, and I believe
16 that talc particles, once they produce an
17 inflammatory response, they become
18 sequestered within that inflammatory milieu
19 and no longer are available for movement back
20 out into the fluid.

21 I'm sure there's some small
22 percentage of them that are an exception to
23 that, but for the majority, that would be the
24 case.

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1 CERTIFICATE
2 I, MICHAEL E. MILLER, Fellow of
3 the Academy of Professional Reporters,
4 Registered Diplomate Reporter, Certified
5 Realtime Reporter, Certified Court Reporter
6 and Notary Public, do hereby certify that
7 prior to the commencement of the examination,
8 ARCH I. "CHIP" CARSON, M.D., Ph.D. was duly
9 sworn by me to testify to the truth, the
whole truth and nothing but the truth.

10 I DO FURTHER CERTIFY that the
11 foregoing is a verbatim transcript of the
12 testimony as taken stenographically by and
13 before me at the time, place and on the date
14 hereinbefore set forth, to the best of my
15 ability.

16 I DO FURTHER CERTIFY that pursuant
17 to FRCP Rule 30, signature of the witness was
18 not requested by the witness or other party
19 before the conclusion of the deposition.

20 I DO FURTHER CERTIFY that I am
21 neither a relative nor employee nor attorney
22 nor counsel of any of the parties to this
23 action, and that I am neither a relative nor
24 employee of such attorney or counsel, and
25 that I am not financially interested in the
action.

26 MICHAEL E. MILLER, FAPR, RDR, CRR
27 Fellow of the Academy of Professional Reporters
28 NCRA Registered Diplomate Reporter
29 NCRA Certified Realtime Reporter
30 Certified Court Reporter

31 Notary Public in and for the
32 State of Texas
33 My Commission Expires: 7/9/2020

34 Dated: January 22, 2019

1 MS. APPEL: Okay. That's all I
2 have. Thank you, Dr. Carson.

3 MS. TINSLEY: I don't have any
4 questions.

5 MS. O'DELL: Okay. Why don't
6 we take a short break.

7 THE VIDEOGRAPHER: Off the
8 record at 5:37, end of Tape 4.

9 (Recess taken, 5:37 p.m. to
10 5:44 p.m.)

11 THE VIDEOGRAPHER: We're on the
12 record at 5:44, beginning of Tape 5.

13 MS. O'DELL: Dr. Carson, I
14 don't have any questions, so this will
15 conclude your deposition.

16 MR. ZELLERS: Thank you,
17 Doctor.

18 THE VIDEOGRAPHER: Going off
19 the record, 5:44. End of deposition,
20 end of Tape 5.

21 (Proceedings recessed at
22 5:45 p.m.)

23 --00o--

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1 INSTRUCTIONS TO WITNESS

2
3 Please read your deposition over
4 carefully and make any necessary corrections.
5 You should state the reason in the
6 appropriate space on the errata sheet for any
7 corrections that are made.

8 After doing so, please sign the
9 errata sheet and date it.

10 You are signing same subject to
11 the changes you have noted on the errata
12 sheet, which will be attached to your
13 deposition.

14 It is imperative that you return
15 the original errata sheet to the deposing
16 attorney within thirty (30) days of receipt
17 of the deposition transcript by you. If you
18 fail to do so, the deposition transcript may
19 be deemed to be accurate and may be used in
20 court.

21

22

23

24

Arch I. "Chip" Carson, M.D., Ph.D.

<p>1 ERRATA 2 PAGE LINE CHANGE 3 4 REASON: _____ 5 6 REASON: _____ 7 8 REASON: _____ 9 10 REASON: _____ 11 12 REASON: _____ 13 14 REASON: _____ 15 16 REASON: _____ 17 18 REASON: _____ 19 20 REASON: _____ 21 22 REASON: _____ 23 24 REASON: _____</p>	<p>Page 366</p> <p>1 LAWYER'S NOTES 2 3 PAGE LINE 4 _____ _____ 5 _____ _____ 6 _____ _____ 7 _____ _____ 8 _____ _____ 9 _____ _____ 10 _____ _____ 11 _____ _____ 12 _____ _____ 13 _____ _____ 14 _____ _____ 15 _____ _____ 16 _____ _____ 17 _____ _____ 18 _____ _____ 19 _____ _____ 20 _____ _____ 21 _____ _____ 22 _____ _____ 23 _____ _____ 24 _____ _____</p>
<p>Page 367</p> <p>1 ACKNOWLEDGMENT OF DEPONENT 2 3 4 I, ARCH I. "CHIP" CARSON, M.D., Ph.D., do hereby certify that I have read the 5 foregoing pages and that the same is a correct transcription of the answers given by 6 me to the questions therein propounded, except for the corrections or changes in form 7 or substance, if any, noted in the attached Errata Sheet.</p> <p>8 9 10 11 12 ARCH I. "CHIP" CARSON, M.D., Ph.D. DATE 13 14 15 Subscribed and sworn to before me this 16 ____ day of _____, 20 _____. 17 My commission expires: _____ 18 19 20 Notary Public 21 22 23 24</p>	